



THE DATASHEET OF 26PCFFS2G





Miniature Low Pressure Sensors **26PC Series, Compensated/Unamplified** 1 psi to 250 psi



Miniature Low Pressure Sensors

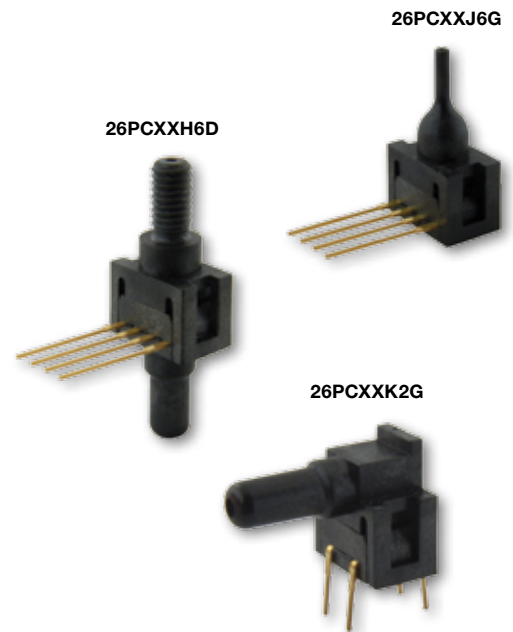
The 26PC Series Miniature Pressure Sensors are small, cost-effective devices intended for use with wet or dry media. These sensors feature proven sensing technology that uses a specialized piezoresistive micromachined sensing element to offer high performance, reliability, and accuracy. Each sensor contains four active piezoresistors that form a Wheatstone bridge. When pressure is applied, the resistance changes and the sensor provides a milliVolt output signal that is proportional to the input pressure.

The low power 26PC sensors are designed to accommodate pressures from 1 psi to 250 psi and have an operating temperature range of -40 °C to 85 °C [-40 °F to 185 °F].

These sensors can accommodate a variety of wet and dry media that are compatible with polyphthalamide (PPA) plastics and media seals specified in the Nomenclature and Order Guide (see Figure 2). The 26PC sensors are RoHS compliant. They are designed and manufactured according to ISO 9001 standards.

What makes our sensors better?

- Wet/Wet capability (i.e., liquids on both ports)
- Selectable seals available to match media used
- Higher pressure ranges for use in high pressure applications
- Wide variety of pressure port types
- Available in both SIP and DIP packages



For all available configurations, see Table 4.

Features and Benefits

One sensor does the work of two!

TRUE WET/WET DIFFERENTIAL MEDIA SENSING

Provides liquid sensing in differential applications

WIDE OPERATING TEMPERATURE RANGE OF -40 °C TO 85 °C [-40 °F TO 185 °F]

Allows use in a wide variety of applications

By matching pressure ranges to the application, we optimize resolution and improve system accuracy.

VARIETY OF PRESSURE RANGES WITHIN 1 PSI TO 250 PSI

Provides flexibility in customers' pneumatic designs

ABSOLUTE, DIFFERENTIAL, AND GAGE MEASUREMENT TYPES

Allows customers to choose the sensor that fits their application

Gives customers greater system flexibility in their designs.

VARIETY OF PRESSURE PORT TYPES AND LEAD TERMINATIONS

Provides application flexibility

ALSO AVAILABLE IN SMT AND FLOW-THROUGH PACKAGE STYLES

Provides added design flexibility

Potential Applications



MEDICAL

OXYGEN CONCENTRATORS

May be used to measure the sieve bed pressure to optimize system performance

DENTAL CHAIRS

May be used to control the pneumatic pressure in the various dental instruments

HEMODIALYSIS

May be used to monitor the correct pressure to help ensure optimum blood filtration



INDUSTRIAL

WATER CONTROL VALVES

May be used to monitor the water consumption in homes and buildings

IRRIGATION EQUIPMENT

May be used to control the water pressure and flow being delivered

FILTER MONITORING

May be used to detect when the filters are clogged and need to be replaced

PRESSURE VALVES

May be used to measure and control pressure in industrial processes



AIR COMPRESSORS

May be used to control the pressure being delivered to the end user equipment

BREATHALIZERS

May be used to measure the exhalation pressure to ensure proper breath analysis

26PC Series, Compensated/Unamplified

Table 1. Absolute Maximum Ratings¹

| Characteristic | Min. | Typ. | Max. | Unit | Note |
|-------------------|------|------|------|------|------|
| Supply voltage | 2.5 | 10 | 16 | Vdc | – |
| Input resistance | 5.5 | 7.5 | 11.5 | kOhm | – |
| Output resistance | 1.5 | 2.5 | 3 | kOhm | – |
| Time response | – | – | 1 | ms | 2 |

¹Absolute maximum ratings are the extreme limits the device will withstand without damage.

²Time required for the output to increase from 10% to 90% of span in response to a step change in input pressure from the specified min. to max. operating pressure.

Table 2. Technical Specifications

| Characteristic | Parameter |
|---|---|
| Operating temperature range: without EPDM seals with EPDM seals | -40 °C to 85 °C [-40 °F to 185 °F] -20 °C to 85 °C [-4 °F to 185 °F] |
| Compensated temperature range | 0 °C to 50 °C [32 °F to 122 °F] |
| Storage temperature range | -55 °C to 100 °C [-67 °F to 212 °F] |
| Soldering terminal temperature/time | 315 °C [599 °F] max./10 s max. |
| Vibration | 10 G at 20 Hz to 2000 Hz |
| Shock | 100 G for 11 ms |
| Life | 1 million cycles min. |

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Table 3. Performance Characteristics (Vcc =10.00 ±0.01 Vdc; Ta = 25 °C [77 °F])

| Characteristic | 0 psi to 1 psi | | 0 psi to 5 psi | | 0 psi to 15 psi | | 0 psi to 30 psi | | 0 psi to 100 psi | | 0 psi to 250 psi | | Unit | Note |
|--|----------------|---------|----------------|--------|-----------------|--------|-----------------|--------|------------------|--------|------------------|--------|-------|------|
| | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | | |
| Span | – | 16.7 ±2 | – | 50 ±3 | – | 100 ±3 | – | 100 ±3 | – | 100 ±3 | – | 150 ±7 | mV | 1 |
| Null offset | – | 0 ±1.5 | – | 0 ±1.5 | – | 0 ±1.5 | – | 0 ±1.5 | – | 0 ±2.0 | – | 0 ±2.0 | mV | 2 |
| Linearity (Best Fit Straight Line, P2>P1) | 0.25 | 0.5 | 0.4 | 0.5 | 0.25 | 0.5 | 0.1 | 0.2 | 0.4 | 0.6 | 0.5 | 0.7 | %span | 3 |
| Null shift (0 °C to 25 °C, 25 °C to 50 °C) | ±0.5 | ±1.0 | ±0.5 | ±1.0 | ±0.5 | ±1.0 | ±0.75 | ±1.5 | ±1.0 | ±2.0 | ±1.0 | ±2.0 | mV | 4 |
| Span shift (0 °C to 25 °C, 25 °C to 50 °C) | ±1.0 | ±2.0 | ±1.0 | ±1.5 | ±0.75 | ±1.5 | ±0.75 | ±1.5 | ±0.5 | ±1.5 | ±0.5 | ±1.5 | %span | 5 |
| Repeatability and hysteresis | ±0.5 | – | ±0.2 | – | ±0.2 | – | ±0.2 | – | ±0.2 | – | ±0.2 | – | mV | 6 |
| Overpressure | – | 20 | – | 20 | – | 45 | – | 60 | – | 200 | – | 500 | psi | 7 |

¹Span is the algebraic difference between the output signal measured at the upper and lower limits of the operating pressure range, where Port 2 (P2)>Port 1 (P1).

²The output signal obtained when zero pressure is applied to all available ports.

³The maximum deviation of product output from a straight line fitted to the output measured over the specified operating pressure range, calculated according to BFSL. The straight line is fitted along a set of points that minimizes the sum of the square of the deviations of each of the points (“least-squares” method).

⁴The maximum deviation in offset due to changes in temperature over the compensated temperature range, relative to offset measured at a reference temperature of 25 °C.

⁵The maximum deviation in span due to changes in temperature over the compensated temperature range, relative to full-scale span measured at a reference temperature of 25 °C.

⁶Repeatability is the maximum difference between the output readings when the same pressure is applied consecutively, under the same operating conditions, with pressure approaching from the same direction within the specified operating pressure range. Hysteresis is the maximum difference between output readings when the same pressure is applied consecutively, under the same operating conditions, with pressure approaching from opposite directions within the specified operating pressure range.

⁷Overpressure is the maximum pressure that may safely be applied to the product for it to remain in specification once pressure is returned to the operating pressure range. Exposure to higher pressures may cause permanent damage to the product. Unless otherwise specified, this applies to all available pressure ports at any temperature within the operating temperature range.

Figure 1. Circuit Diagram



Output “A” increases as P2 pressure increases.

Output “B” decreases as P2 pressure increases.

| Symbol | Description |
|----------|------------------------|
| Vcc | supply |
| OUTPUT A | bridge positive output |
| GROUND | ground |
| OUTPUT B | bridge negative output |

26PC Series, Compensated/Unamplified

Figure 2. Nomenclature and Order Guide^{1,4}

For example, a **26PCBEJ6G** catalog listing defines a 26PC Series Miniature Low Pressure Sensor, Compensated/Unamplified, 5 psi pressure range, EPDM seal material, needle pressure port type, 1 x 4 SIP, 15,2 mm [0.60 in] long termination configuration, with normal polarity output and gage pressure measurement type.

| 26PC | B | E | J | 6G |
|--|-----------------------------|--------------------------------|--|--|
| Product Series | Pressure Range | Seal Material | Pressure Port Type | Termination Configuration, Output, Pressure Measurement Type |
| 26PC Series Miniature Low Pressure Sensors, Compensated/Unamplified | A 1 psi | F fluorosilicone | A Straight | 6D 1 x 4 SIP, 15,2 mm [0.60 in] long, normal polarity, differential |
| | B 5 psi | E EPDM | B Barbed | |
| | C 15 psi | N neoprene ² | C Luer | 6G 1 x 4 SIP, 15,2 mm [0.60 in] long, normal polarity, gage |
| | D 30 psi | | D Modular | 1G 1 x 4 SIP, 10,2 mm [0.40 in] long, normal polarity, gage |
| | F 100 psi | H M5 thread port | 2G 2 x 2 DIP, normal polarity, gage | |
| | G 250 psi | I 90° (opposite Pin 1) | | J Needle |
| | K 90° (toward Pin 1) | M 1/4-28 thread | | |
| | S Manifold mount | T Long barbed | | |

¹Every combination may not be possible. Contact customer service.

²Available in 1 psi, 5 psi and 15 psi pressure ranges only.

³Absolute pressure sensors require pressure port types A or D.

Miniature Low Pressure Sensors

Table 4. All Available Standard Configurations (See Figure 2.)

| | | Termination Configuration, Output, Pressure Measurement Type | | | |
|--------------------|---------------------------------|---|---|---|---|
| | | 6D | 6G | 1G | 2G |
| Pressure Port Type | A Straight |  |  | N/A |  |
| | B Barbed |  |  |  |  |
| | C Luer |  |  |  |  |
| | D Modular |  |  | N/A |  |
| | H M5 Thread |  |  |  |  |
| | I 90° (Opposite Pin 1) |  |  | N/A | N/A |
| | J Needle |  |  | N/A |  |
| | K 90° (Toward Pin 1) |  |  | N/A |  |
| | M 1/4-28 Thread |  |  |  |  |
| | S Manifold Mount |  |  |  |  |
| | T Long Barbed |  |  | N/A |  |

26PC Series, Compensated/Unamplified

Figure 3. Mounting Dimensions (For Reference Only: mm/[in.])

26PCXXA6D



26PCXXA6G



26PCXXA2G



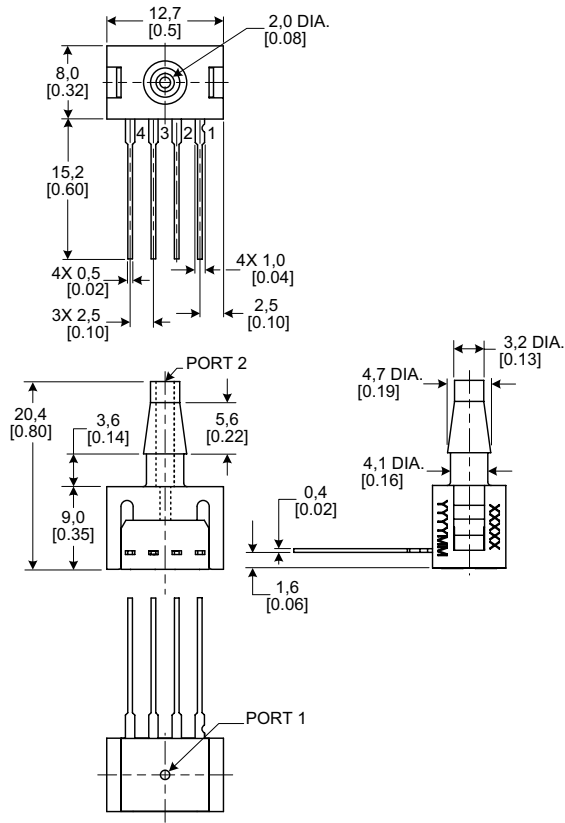
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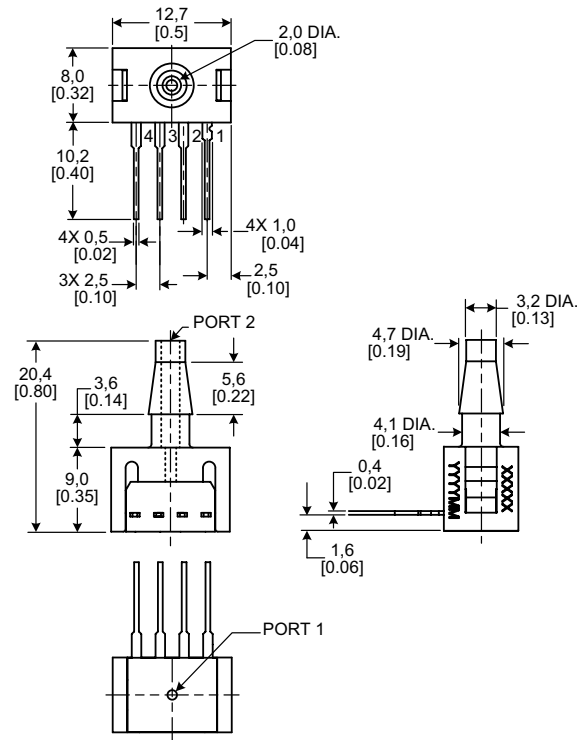
Miniature Low Pressure Sensors

Figure 3. Mounting Dimensions (continued)

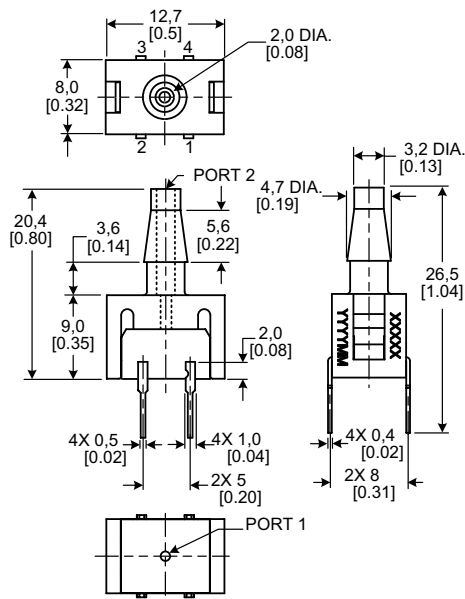
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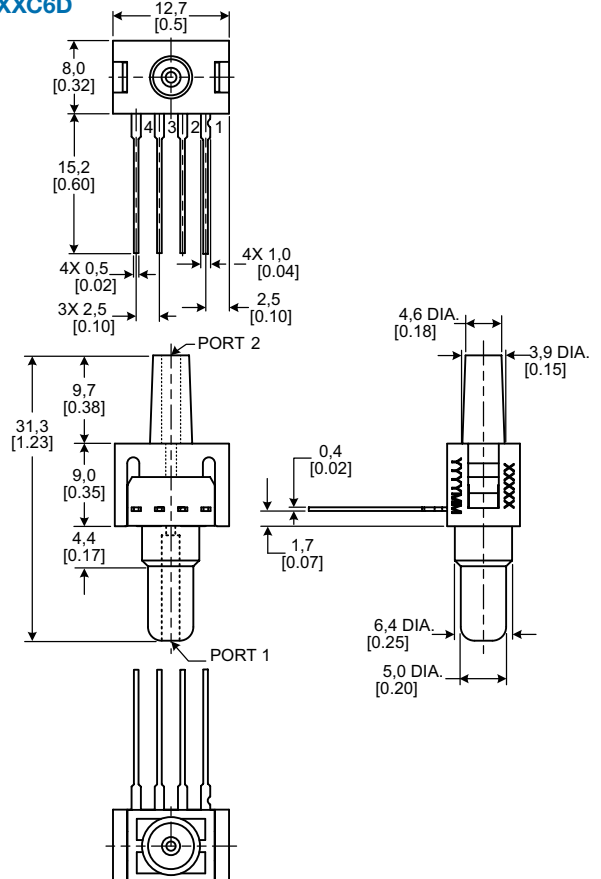
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26PCXXB2G



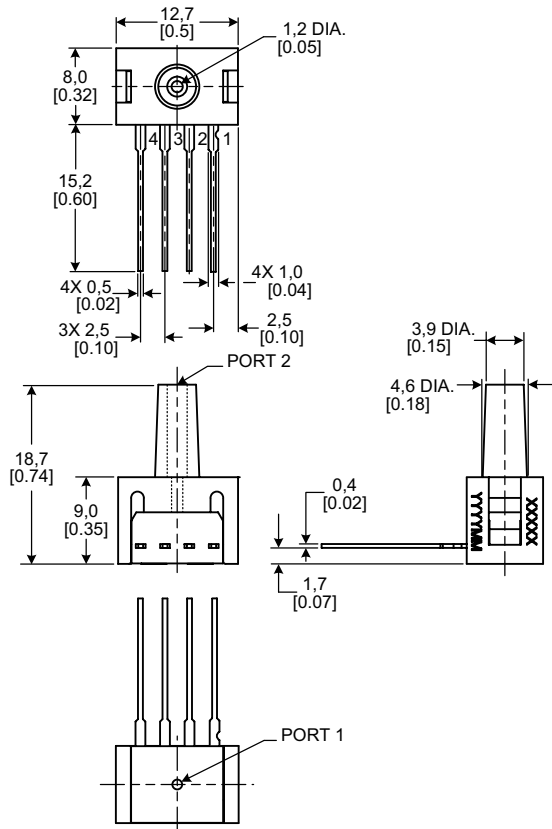
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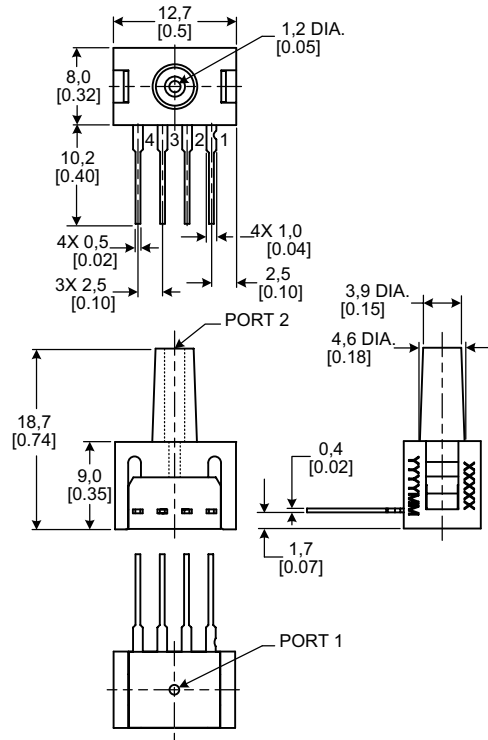
26PC Series, Compensated/Unamplified

Figure 3. Mounting Dimensions (continued)

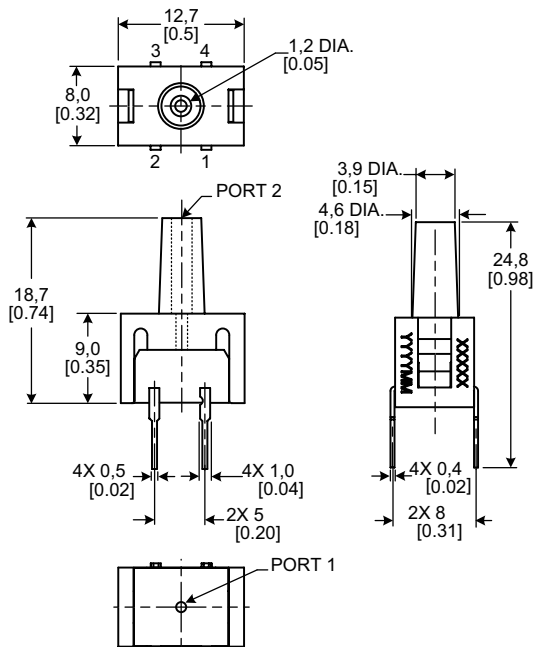
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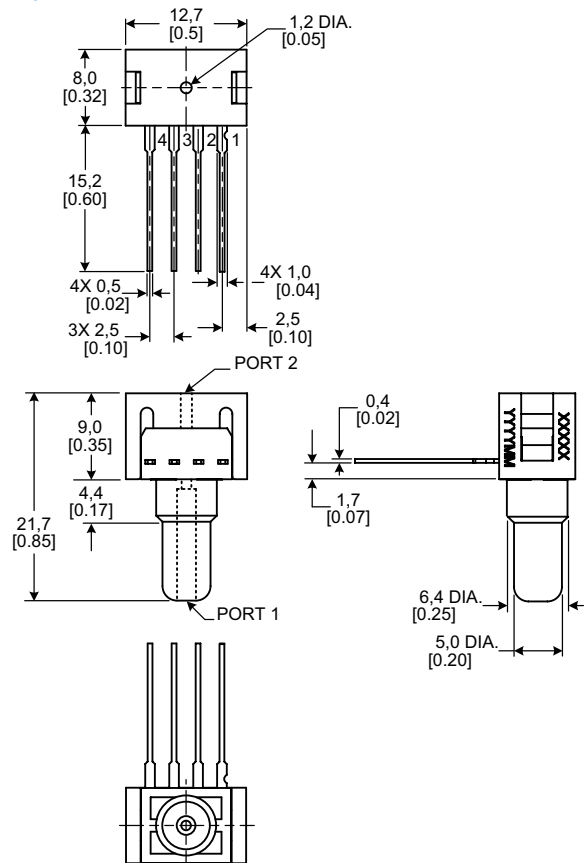
26PCXXC1G



26PCXXC2G



26PCXXD6D



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Figure 3. Mounting Dimensions (continued)

26PCXXD6G



26PCXXD2G



26PCXXH6D



26PCXXH6G



26PC Series, Compensated/Unamplified

Figure 3. Mounting Dimensions (continued)

26PCXXH1G



26PCXXH2G



26PCXXI6D



26PCXXI6G



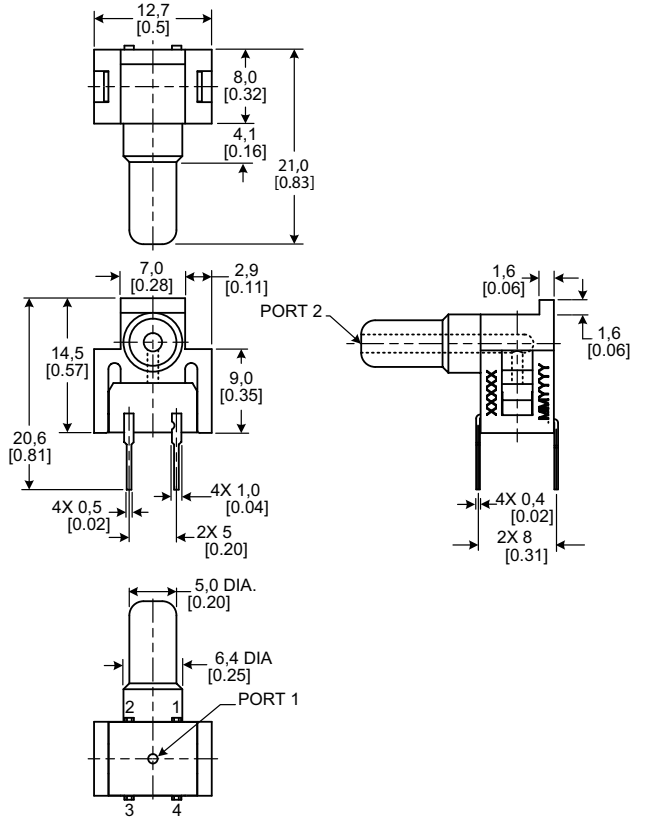
26PC Series, Compensated/Unamplified

Figure 3. Mounting Dimensions (continued)

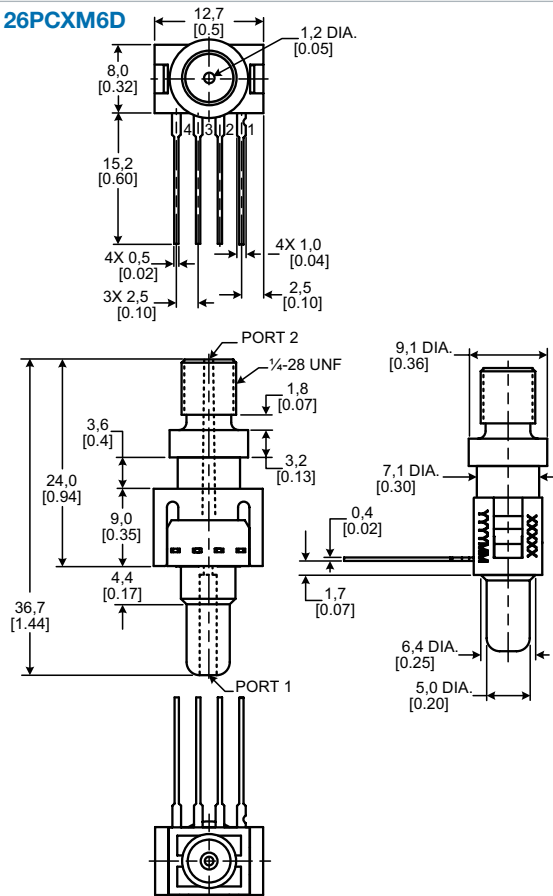
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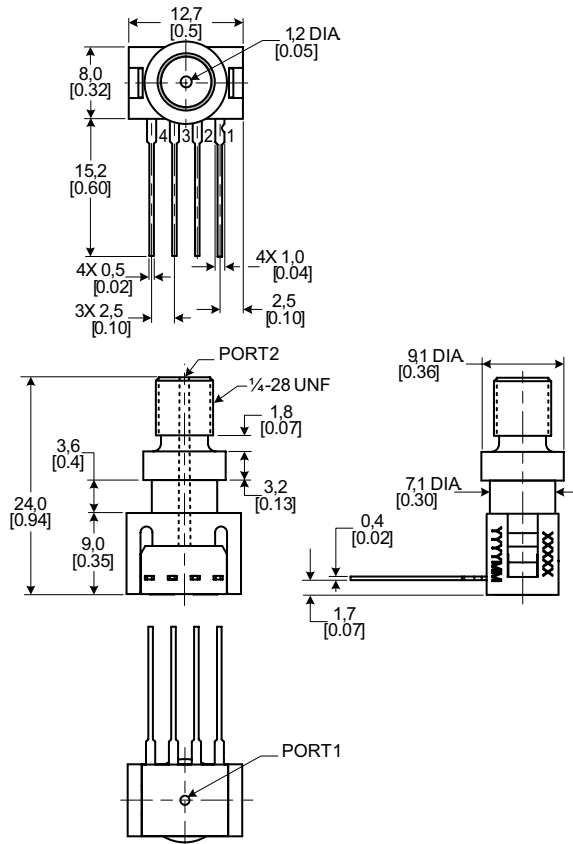
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26PCXM6D



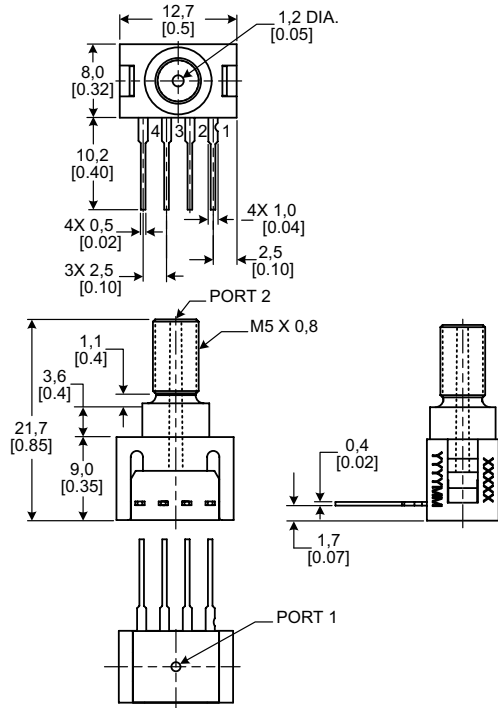
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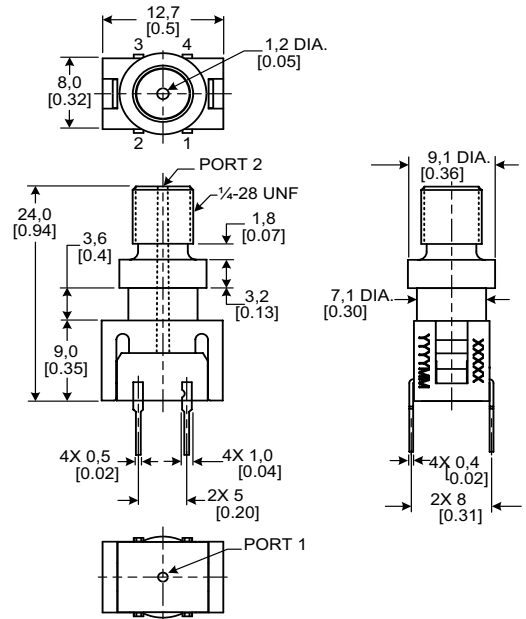
Miniature Low Pressure Sensors

Figure 3. Mounting Dimensions (continued)

26PCXXM1G



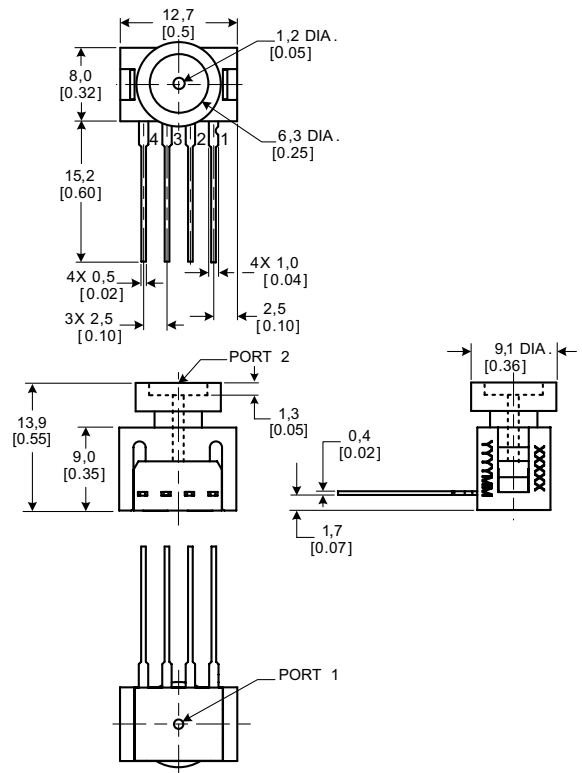
26PCXXM2G



26PCXXS6D



26PCXXS6G



26PC Series, Compensated/Unamplified

Figure 3. Mounting Dimensions (continued)

26PCXXS1G



26PCXXS2G



26PCXXT6D



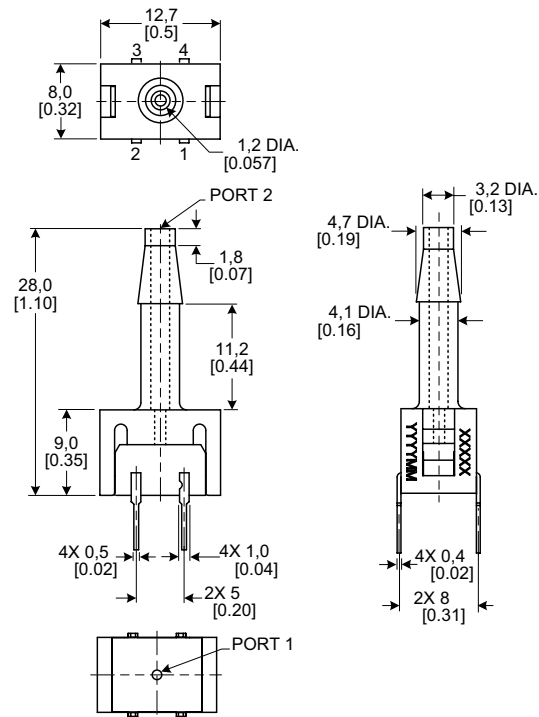
26PCXXT6G



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Figure 3. Mounting Dimensions (continued)

26PCXXT2G



ADDITIONAL INFORMATION

The following associated literature is available at sensing.honeywell.com:

- Product Line Guide
- Product Range Guide
- Product Installation Instructions
- Application-Specific Information
- Technical Notes

Find out more

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