

#### FEATURES

- Ranges from 1 to 30 "H<sub>2</sub>O and 2.5 to 75 mbar differential or gage
- Precision temperature compensated
- Calibrated offset and span
- Extremely low position sensitivity
- Excellent long term stability
- Ratiometric output or internal supply regulation

#### SERVICE

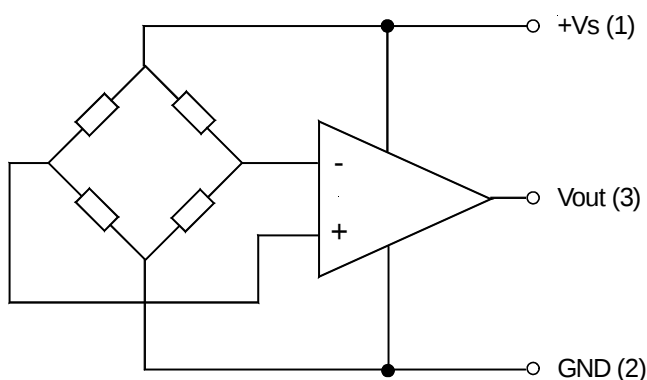
Non-corrosive, non-ionic working fluids such as clean dry air, dry gases and the like.

The media wetted materials are:

- silicon diaphragm
- glass filled nylon
- RTV
- ceramic (Al<sub>2</sub>O<sub>3</sub>)



#### EQUIVALENT CIRCUIT



### SPECIFICATIONS

#### Maximum ratings (for all devices)

|                                     |                              |
|-------------------------------------|------------------------------|
| Supply voltage $V_s$                | 4.9 to 5.1 V (DC...C4)       |
|                                     | 7 to 30 V (DC...R4, DC...R5) |
| Lead temperature (soldering 5 sec.) | 315 °C                       |
| Maximum load current                |                              |
| Source                              | 2 mA                         |
| Sink                                | 20 $\mu$ A                   |

#### Environmental specifications (for all devices)

|                                  |               |
|----------------------------------|---------------|
| Temperature range                |               |
| Compensated                      | 0 to 50°C     |
| Operating                        | -25 to +85°C  |
| Storage                          | -40 to +125°C |
| Humidity limits (non-condensing) | 0 to 95 %RH   |

**CAUTION** Applications requiring supply voltages greater than 20 V on power-up must have a 10 Ohm resistor installed between pin 1 of the sensor and the positiv (+) lead of the power supply.

If the sensor is subjected to a supply voltage of >20 V without ramp up, a current spike may occur causing the operational amplifier and/or the ASIC to fail.

Do not operate above 30 V max. Due to internal component ratings, the maximum safe operating voltage specification is 30 V.

### PRESSURE SENSOR CHARACTERISTICS

| Part no.  | Pressure ranges       | Proof pressure <sup>1</sup> | Burst pressure <sup>2</sup> |
|-----------|-----------------------|-----------------------------|-----------------------------|
| DC001N... | 1 "H <sub>2</sub> O   | 100 "H <sub>2</sub> O       | 200 "H <sub>2</sub> O       |
| DC002N... | 2 "H <sub>2</sub> O   | 100 "H <sub>2</sub> O       | 200 "H <sub>2</sub> O       |
| DC2R5N... | 2.5 "H <sub>2</sub> O | 100 "H <sub>2</sub> O       | 200 "H <sub>2</sub> O       |
| DC005N... | 5 "H <sub>2</sub> O   | 150 "H <sub>2</sub> O       | 300 "H <sub>2</sub> O       |
| DC010N... | 10 "H <sub>2</sub> O  | 150 "H <sub>2</sub> O       | 300 "H <sub>2</sub> O       |
| DC020N... | 20 "H <sub>2</sub> O  | 300 "H <sub>2</sub> O       | 450 "H <sub>2</sub> O       |
| DC030N... | 30 "H <sub>2</sub> O  | 450 "H <sub>2</sub> O       | 600 "H <sub>2</sub> O       |
| DC2R5B... | 2.5 mbar              | 250 mbar                    | 500 mbar                    |
| DC005B... | 5 mbar                | 250 mbar                    | 500 mbar                    |
| DC010B... | 10 mbar               | 375 mbar                    | 750 mbar                    |
| DC025B... | 25 mbar               | 375 mbar                    | 750 mbar                    |
| DC050B... | 50 mbar               | 750 mbar                    | 1125 mbar                   |
| DC075B... | 75 mbar               | 1125 mbar                   | 1500 mbar                   |

#### Notes

<sup>1</sup> Proof pressure is the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element.

<sup>2</sup> Burst pressure is the maximum pressure which may be applied without causing damage to the sensing element or leaks from the housing.

**DC...C4 PERFORMANCE CHARACTERISTICS**0.25...4.25 V ratiometric output version ( $V_S = 5.0$  V,  $T_A = 25^\circ\text{C}$ , pressure applied to port 2)

| Characteristics                         |                                                | Min. | Typ. | Max. | Unit |
|-----------------------------------------|------------------------------------------------|------|------|------|------|
| Zero pressure offset                    | DC...G...                                      |      | 0.25 |      | V    |
|                                         | DC...D...                                      |      | 2.25 |      |      |
| Full scale span <sup>3</sup>            | DC...G...                                      |      | 4.0  |      |      |
|                                         | DC...D...                                      |      | ±2.0 |      |      |
| Total accuracy (0 - 50 °C) <sup>4</sup> | DC001N...<br>DC2R5B...                         |      | ±2.0 | ±3.0 | %FSO |
|                                         | DC002N..., DC2R5N...<br>DC005B...              |      | ±1.5 | ±2.5 |      |
|                                         | all others                                     |      | ±1.0 | ±2.0 |      |
| Offset position sensitivity (±1 g)      | DC001N... to DC2R5N...<br>DC2R5B..., DC005B... |      |      | ±10  | mV   |
|                                         | DC005N...<br>DC010B...                         |      |      | ±5   |      |
|                                         | all others                                     |      |      | ±1   |      |

**DC...R4 PERFORMANCE CHARACTERISTICS**0.25...4.25 V regulated output version ( $V_S = 15.0$  V,  $T_A = 25^\circ\text{C}$ , pressure applied to port 2)

| Characteristics                         |                                                | Min. | Typ. | Max. | Unit |
|-----------------------------------------|------------------------------------------------|------|------|------|------|
| Zero pressure offset                    | DC...G...                                      |      | 0.25 |      | V    |
|                                         | DC...D...                                      |      | 2.25 |      |      |
| Full scale span <sup>3</sup>            | DC...G...                                      |      | 4.0  |      |      |
|                                         | DC...D...                                      |      | ±2.0 |      |      |
| Total accuracy (0 - 50 °C) <sup>4</sup> | DC001N...<br>DC2R5B...                         |      | ±2.0 | ±3.0 | %FSO |
|                                         | DC002N..., DC2R5N...<br>DC005B...              |      | ±1.5 | ±2.5 |      |
|                                         | all others                                     |      | ±1.0 | ±2.0 |      |
| Offset position sensitivity (±1 g)      | DC001N... to DC2R5N...<br>DC2R5B..., DC005B... |      |      | ±10  | mV   |
|                                         | DC005N...<br>DC010B...                         |      |      | ±5   |      |
|                                         | all others                                     |      |      | ±1   |      |

**Notes:**<sup>3</sup> Full scale span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure.<sup>4</sup> Total accuracy includes non-linearity, hysteresis, repeatability, zero offset and span error, thermal effect on zero offset and span. Non-linearity refers to the **Best Straight Line** fit measured for offset pressure, full-scale pressure and ½ full-scale pressure.

### DC...R5 PERFORMANCE CHARACTERISTICS

1...6 V regulated output version ( $V_s = 15.0\text{ V}$ ,  $T_A = 25^\circ\text{C}$ , pressure applied to port 2)

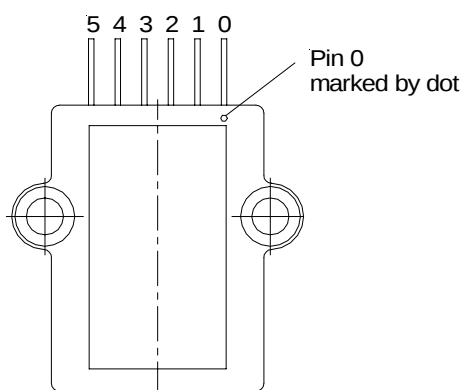
| Characteristics                         |                                                | Min. | Typ.        | Max. | Unit |
|-----------------------------------------|------------------------------------------------|------|-------------|------|------|
| Zero pressure offset                    | DC...G...<br>DC...D...                         |      | 1<br>3.5    |      | V    |
| Full scale span <sup>3</sup>            | DC...G...<br>DC...D...                         |      | 5.0<br>±2.5 |      |      |
| Total accuracy (0 - 50 °C) <sup>4</sup> | DC001N...<br>DC2R5B...                         |      | ±2.0        | ±3.0 | %FSO |
|                                         | DC002N..., DC2R5N...<br>DC005B...              |      | ±1.5        | ±2.5 |      |
|                                         | all others                                     |      | ±1.0        | ±2.0 |      |
| Offset position sensitivity (±1 g)      | DC001N... to DC2R5N...<br>DC2R5B..., DC005B... |      |             | ±10  | mV   |
|                                         | DC005N...<br>DC010B...                         |      |             | ±5   |      |
|                                         | all others                                     |      |             | ±1   |      |

#### Notes:

<sup>3</sup> Full scale span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure.

<sup>4</sup> Total accuracy includes non-linearity, hysteresis, repeatability, zero offset and span error, thermal effect on zero offset and span. Non-linearity refers to the **Best Straight Line** fit measured for offset pressure, full-scale pressure and ½ full-scale pressure.

### ELECTRICAL CONNECTION

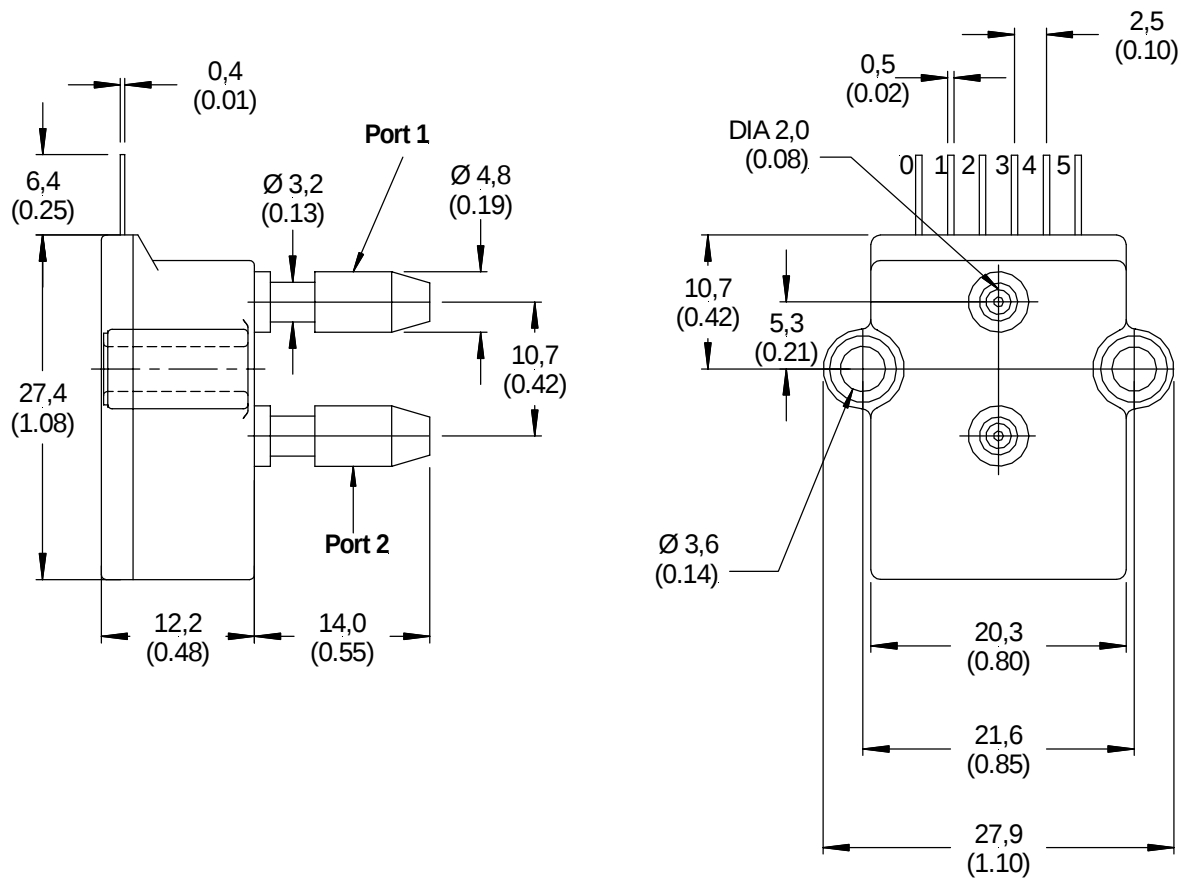


| Pin no. | Output version                                     |                                                  |                                            |
|---------|----------------------------------------------------|--------------------------------------------------|--------------------------------------------|
|         | DC...C4<br>(4 Pin)<br>0.25...4.25 V<br>ratiometric | DC...R4<br>(6 Pin)<br>0.25...4.25 V<br>regulated | DC...R5<br>(6 Pin)<br>1...6 V<br>regulated |
| 0       | no pin                                             | N / C                                            | N / C                                      |
| 1       | +Vs                                                | +Vs                                              | +Vs                                        |
| 2       | GND                                                | GND                                              | GND                                        |
| 3       | Vout                                               | Vout                                             | Vout                                       |
| 4       | I / C*                                             | I / C*                                           | I / C*                                     |
| 5       | no pin                                             | N / C                                            | N / C                                      |

\* Do not use for any reason

**Note:** The polarity indicated is for pressure applied to port 2

## OUTLINE DRAWING



**mass:** approx. 10 g

dimensions mm (inches)

### ORDERING INFORMATION

| Pressure range                            | Output                       |                            |                      |
|-------------------------------------------|------------------------------|----------------------------|----------------------|
|                                           | 0.25...4.25 V<br>ratiometric | 0.25...4.25 V<br>regulated | 1...6 V<br>regulated |
| <b>Differential/Gage</b>                  |                              |                            |                      |
| 0 to 1 "H <sub>2</sub> O                  | DC001NGC4                    | DC001NGR4                  | DC001NGR5            |
| 0 to 2 "H <sub>2</sub> O                  | DC002NGC4                    | DC002NGR4                  | --- <sup>6</sup>     |
| 0 to 2.5 "H <sub>2</sub> O                | --- <sup>6</sup>             | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to 5 "H <sub>2</sub> O                  | DC005NGC4                    | DC005NGR4                  | DC005NGR5            |
| 0 to 10 "H <sub>2</sub> O                 | DC010NGC4                    | --- <sup>6</sup>           | DC010NGR5            |
| 0 to 20 "H <sub>2</sub> O                 | DC020NGC4                    | --- <sup>6</sup>           | --- <sup>5</sup>     |
| 0 to 30 "H <sub>2</sub> O                 | DC030NGC4                    | DC030NGR4                  | DC030NGR5            |
| <b>Differential<br/>(Pressure/vacuum)</b> |                              |                            |                      |
| 0 to ±1 "H <sub>2</sub> O                 | DC001NDC4                    | DC001NDR4                  | DC001NDR5            |
| 0 to ±2 "H <sub>2</sub> O                 | DC002NDC4                    | DC002NDR4                  | DC002NDR5            |
| 0 to ±2.5 "H <sub>2</sub> O               | DC2R5NDC4                    | DC2R5NDR4                  | DC2R5NDR5            |
| 0 to ±5 "H <sub>2</sub> O                 | DC005NDC4                    | DC005NDR4                  | DC005NDR5            |
| 0 to ±10 "H <sub>2</sub> O                | DC010NDC4                    | DC010NDR4                  | DC010NDR5            |
| 0 to ±20 "H <sub>2</sub> O                | DC020NDC4                    | DC020NDR4                  | DC020NDR5            |
| 0 to ±30 "H <sub>2</sub> O                | DC030NDC4                    | DC030NDR4                  | DC030NDR5            |
| <b>Differential/Gage</b>                  |                              |                            |                      |
| 0 to 2.5 mbar                             | --- <sup>6</sup>             | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to 5 mbar                               | --- <sup>6</sup>             | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to 10 mbar                              | --- <sup>6</sup>             | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to 25 mbar                              | DC025BGC4                    | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to 50 mbar                              | DC050BGC4                    | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to 75 mbar                              | --- <sup>6</sup>             | --- <sup>6</sup>           | --- <sup>6</sup>     |
| <b>Differential<br/>(Pressure/vacuum)</b> |                              |                            |                      |
| 0 to ±2.5 mbar                            | DC2R5BDC4                    | --- <sup>6</sup>           | DC2R5BDR5            |
| 0 to ±5 mbar                              | DC005BDC4                    | --- <sup>6</sup>           | --- <sup>6</sup>     |
| 0 to ±10 mbar                             | DC010BDC4                    | DC010BDR4                  | DC010BDR5            |
| 0 to ±25 mbar                             | DC025BDC4                    | DC025BDR4                  | DC025BDR5            |
| 0 to ±50 mbar                             | DC050BDC4                    | DC050BDR4                  | DC050BDR5            |
| 0 to ±75 mbar                             | DC075BDC4                    | DC075BDR4                  | DC075BDR5            |

#### Note

<sup>6</sup> These devices are available on special request. Minimum order quantity may apply.

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