

144S...-PCB Series

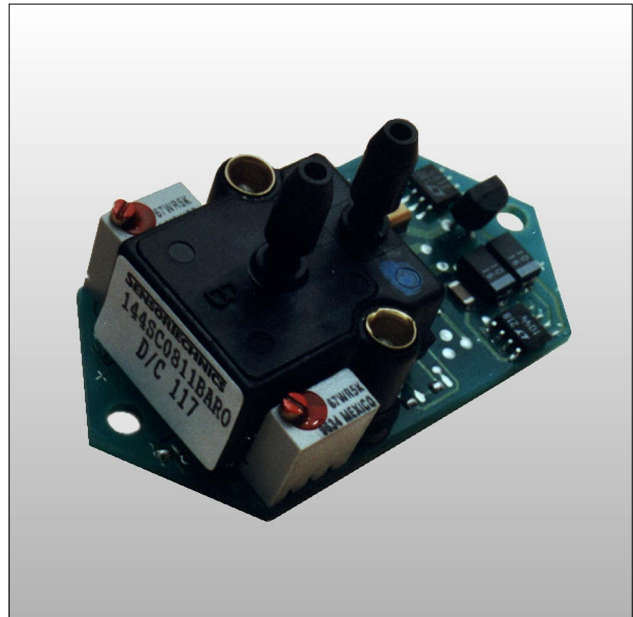
Signal conditioned precision pressure transducers

FEATURES

- 70 mbar to 10 bar, 1 to 150 psi, absolute, gage or differential pressure
- Barometric pressure ranges
- 0...5 V output
- Internal supply regulation
- Precision temperature compensated and calibrated

SERVICE

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

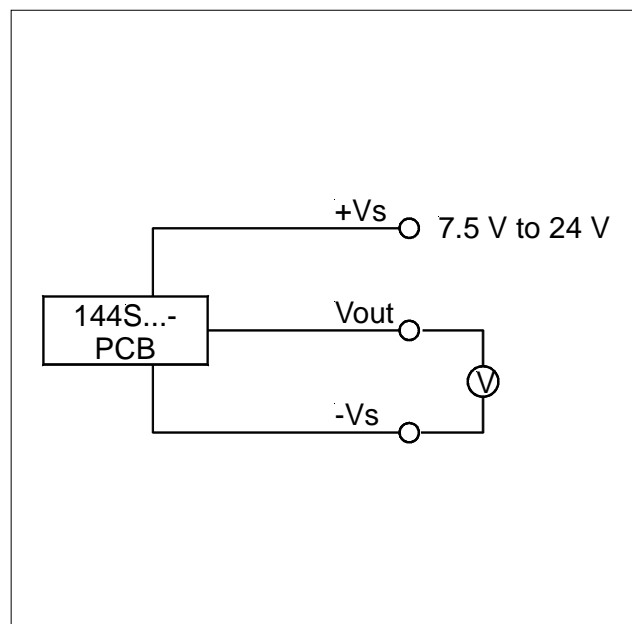


SPECIFICATIONS

Maximum ratings

| | |
|-------------------------------------|-------------------|
| Supply voltage | 7.5...24 V |
| Maximum load current | |
| source | 20 mA |
| sink | 10 mA |
| Temperature limits | |
| Storage | -55 to 100°C |
| Operating | -40 to 85°C |
| Compensated | |
| 144SC...BARO | -10 to 60°C |
| all others | 0 to 70 °C |
| Lead temperature (10 sec soldering) | 300°C |
| Humidity limits | |
| pressure inlets only | 0 - 100 %RH |
| Proof pressure ¹ | |
| 144SM... | 1.4 bar |
| 144SB010... | 16 bar |
| 144SC...BARO | 2 bar |
| 144SU01..., 144SU05... | 20 psi |
| 144SU150... | 250 psi |
| all others | 2x rated pressure |

ELECTRICAL CONNECTION



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PERFORMANCE CHARACTERISTICS

STANDARD DEVICES

(unless otherwise noted $V_s = 8\text{ V}$, $R_L > 100\text{ k}\Omega$, $t_{amb} = 25^\circ\text{C}$)

| Characteristics | | | Min. | Typ. | Max. | Unit |
|---|-----------------------------------|--------------------------------------|-------|-------------|------------|--------|
| Operating pressure | differential devices ² | 144SM070D-PCB | 0 | | 70 | mbar |
| | | 144SM350D-PCB | 0 | | 350 | |
| | | 144SB001D-PCB | 0 | | 1 | bar |
| | | 144SB002D-PCB | 0 | | 2 | |
| | | 144SB005D-PCB | 0 | | 5 | |
| | | 144SB010D-PCB | 0 | | 10 | |
| | absolute devices ³ | 144SB001A-PCB | 0 | | 1 | |
| | | 144SB002A-PCB | 0 | | 2 | |
| | | 144SB005A-PCB | 0 | | 5 | |
| | differential devices ² | 144SU01D-PCB | 0 | | 1 | psi |
| | | 144SU05D-PCB | 0 | | 5 | |
| | | 144SU15D-PCB | 0 | | 15 | |
| | | 144SU30D-PCB | 0 | | 30 | |
| | | 144SU100D-PCB | 0 | | 100 | |
| absolute devices ³ | | 144SU15A-PCB | 0 | | 15 | |
| | 144SU30A-PCB | 0 | | 30 | | |
| | 144SU100A-PCB | 0 | | 100 | | |
| Zero pressure offset | | | -0.05 | 0 | 0.05 | V |
| Full scale span ⁴ | | | 4.9 | 5.0 | 5.1 | |
| Full scale output | | | 4.9 | 5.0 | 5.1 | |
| Non-linearity and hysteresis (BSL) ⁵ | | | | 0.1 | 0.5 | %FSO |
| Thermal effects (0 to 70°C) ⁶ | Offset | 144SM070...,144SU01... | | 0.6 | 3.0 | |
| | | 144SM350...,144SU05... all others | | 0.2 0.15 | 1.0 0.6 | |
| | Span | | | 0.2 | 1.0 | |
| Long term stability ⁷ | | | | 0.1 | | |
| Response time (10 to 90 %) | | | | 1 | | ms |
| Power consumption (no load) | | | | 70 | | mW |
| Power supply rejection | Offset | | | 0.05 | | %FSO/V |
| | Span | | | 0.03 | | |

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PERFORMANCE CHARACTERISTICS

BAROMETRIC DEVICES⁸

(unless otherwise noted $V_s = 8\text{ V}$, $R_L > 100\text{ k}\Omega$, $t_{amb} = 25^\circ\text{C}$)

| Characteristics | | Min. | Typ. | Max. | Unit |
|---|---------------|-------|------|------|-----------|
| Operating pressure ranges ³ | 144SC0811BARO | 800 | | 1100 | mbar |
| | 144SC1216BARO | 12 | | 16 | psia |
| Offset calibration at lowest specified pressure | | -0.05 | 0 | 0.05 | V |
| Full scale output | | 4.95 | 5.0 | 5.05 | |
| Non-linearity and hysteresis ⁵ | | | 0.05 | 0.1 | %FSO |
| Long term stability ⁷ | | | 0.1 | | |
| Thermal effects (-10 to 60°C) ⁹ | | | 0.05 | 0.3 | %FSO/10°C |
| Response time (10 to 90 %) | | | 1 | | ms |
| Power consumption (no load) | | | 70 | | mW |
| Power supply rejection | Offset | | 0.05 | | %FSOV |
| | Span | | 0.03 | | |

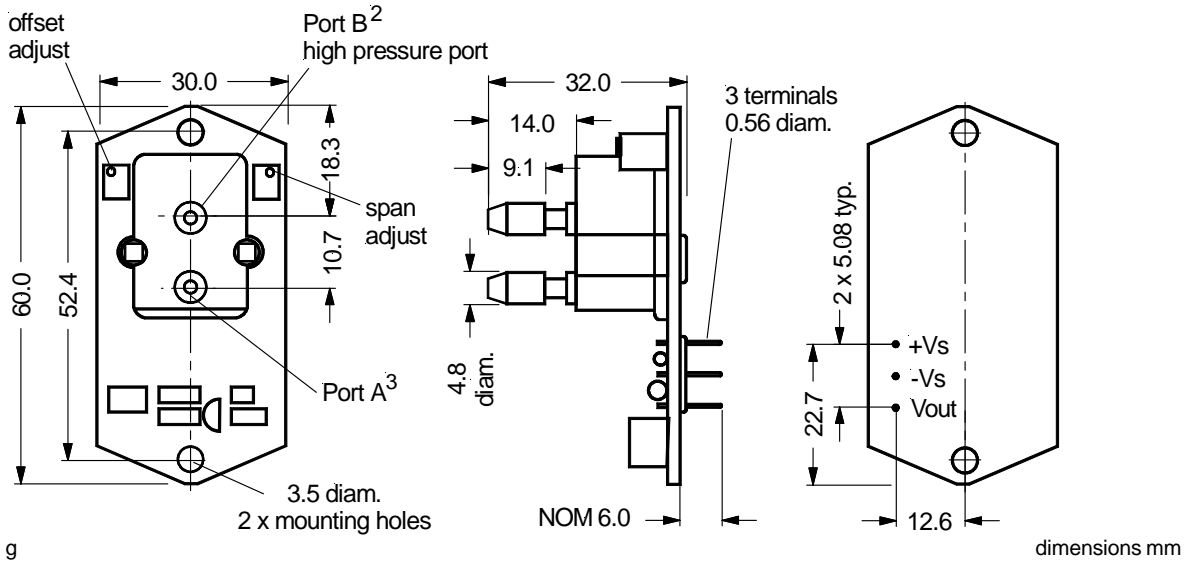
Specification notes:

1. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
2. The output signal of all 144S...D-PCB devices is proportional to the pressure applied to port B, relative to port A, e.g. the output signal increases when vacuum is applied to port A relative to port B.
3. The output signal of all 144S...A-PCB and 144SC...BARO devices is proportional to the pressure applied to port A.
4. Full scale span is the algebraic difference between the positive full scale output and the zero pressure offset.
5. Non-linearity refers to the **Best Straight Line** fit measured for offset pressure, full scale pressure and 1/2 full scale pressure.
6. Thermal effects tested and guaranteed from 0 to 70°C relative to 25°C. All specifications shown are relative to 25°C.
7. Change in output after one year or 1 million pressure cycles.
8. These devices are factory calibrated at sea level. When used at other altitudes the output signal differs from the reading expected when comparing to the pressure given from your local weather station. The weather station always reports the pressure compared to sea level. On that the output signal of the transducer will change 65mV/0.052 psi per 100 feet e.g. 19.7mV/1.18 mbar per 10 m change in altitude. The output signal can be adjusted to sea level reading by turning the offset trimmer.
9. Thermal effects refer to the combined effects of offset and sensitivity shifts, this is true from -10 to 60°C relative to 25°C.

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OUTLINE DRAWING



ORDERING INFORMATION

| Operating Pressure | Part Number | |
|----------------------------------|-----------------|---------------|
| Differential/gage devices | 0...70 mbar | 144SM070D-PCB |
| | 0...350 mbar | 144SM350D-PCB |
| | 0...1 bar | 144SB001D-PCB |
| | 0...2 bar | 144SB002D-PCB |
| | 0...5 bar | 144SB005D-PCB |
| | 0...10 bar | 144SB010D-PCB |
| Absolute devices | 0...1 bar | 144SB001A-PCB |
| | 0...2 bar | 144SB002A-PCB |
| | 0...5 bar | 144SB005A-PCB |
| Differential/gage devices | 0...1 psi | 144SU01D-PCB |
| | 0...5 psi | 144SU05D-PCB |
| | 0...15 psi | 144SU15D-PCB |
| | 0...30 psi | 144SU30D-PCB |
| | 0...100 psi | 144SU100D-PCB |
| | 0...150 psi | 144SU150D-PCB |
| Absolute devices | 0...15 psi | 144SU15A-PCB |
| | 0...30 psi | 144SU30A-PCB |
| | 0...100 psi | 144SU100A-PCB |
| Barometric devices | 12...16 psia | 144SC1216BARO |
| | 800...1100 mbar | 144SC0811BARO |

Other pressure ranges and calibrations are available on request. Please contact First Sensor.

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