

144S...-PCB Series

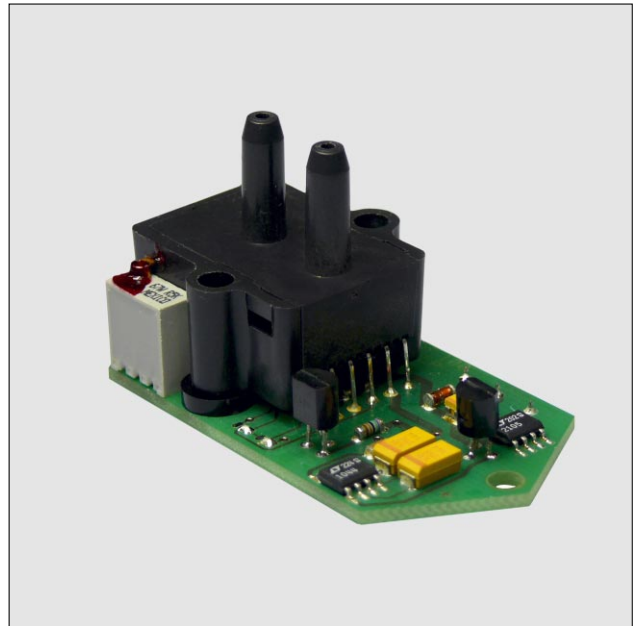
Signal conditioned precision pressure transducers

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.

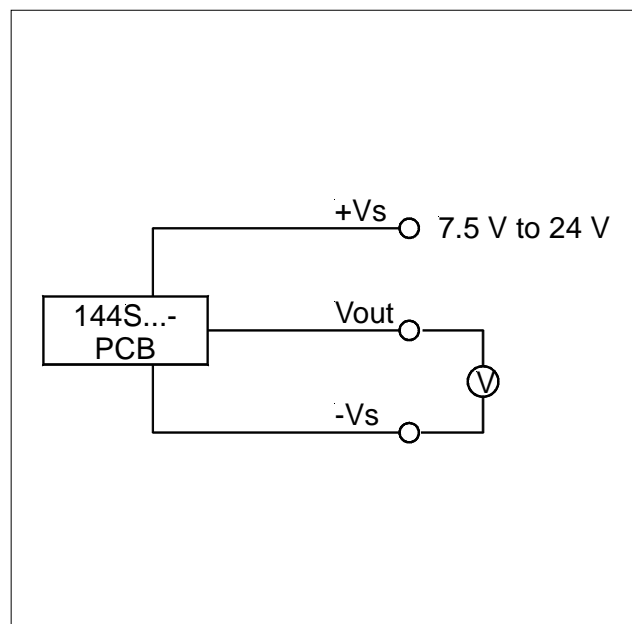


SPECIFICATIONS

Maximum ratings

| | |
|----------------------------------|--------------|
| Supply voltage | 7.5...24 V |
| Maximum load current | |
| Source | 20 mA |
| Sink | 10 mA |
| Temperature limits | |
| Storage | -40...100 °C |
| Operating | -25...85 °C |
| Compensated | |
| 144SC...BARO | -10...60 °C |
| all others | 0...70 °C |
| Humidity limits (non-condensing) | 95 %RH |

ELECTRICAL CONNECTION



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PERFORMANCE CHARACTERISTICS

STANDARD DEVICES^{3, 4}

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

| Part number | Operating pressure | Proof pressure ¹ | Burst pressure ² |
|---------------|--------------------|-----------------------------|-----------------------------|
| 144SM070D-PCB | 0...70 mbar | 350 mbar | 1 bar |
| 144SM350D-PCB | 0...350 mbar | 700 mbar | 2 bar |
| 144SB001D-PCB | 0...1 bar | 4 bar | 8 bar |
| 144SB002D-PCB | 0...2 bar | 6 bar | 10 bar |
| 144SB005D-PCB | 0...5 bar | 13 bar | 16 bar |
| 144SB010D-PCB | 0...10 bar | 13 bar | 16 bar |
| 144SB001A-PCB | 0...1 bara | 4 bara | 8 bara |
| 144SB002A-PCB | 0...2 bara | 6 bara | 10 bara |
| 144SB005A-PCB | 0...5 bara | 13 bara | 16 bara |
| 144SU01D-PCB | 0...1 psi | 5 psi | 15 psi |
| 144SU05D-PCB | 0...5 psi | 10 psi | 30 psi |
| 144SU15D-PCB | 0...15 psi | 60 psi | 120 psi |
| 144SU30D-PCB | 0...30 psi | 90 psi | 150 psi |
| 144SU100D-PCB | 0...100 psi | 200 psi | 250 psi |
| 144SU15A-PCB | 0...15 psia | 60 psia | 120 psia |
| 144SU30A-PCB | 0...30 psia | 90 psia | 150 psia |
| 144SU100A-PCB | 0...100 psia | 200 psia | 250 psia |

| Characteristics | | Min. | Typ. | Max. | Unit |
|---|--------|---|----------------------------|-------------------------|---------|
| Zero pressure offset | | -0.05 | 0 | 0.05 | V |
| Full scale span ⁵ | | 4.95 | 5.0 | 5.05 | |
| Full scale output | | | 5.0 | | |
| Non-linearity and hysteresis (BSL) ⁶ | | | 0.1 | 0.5 | %FSO |
| Thermal effects (0...70 °C) ⁷ | Offset | devices up to 70 mbar/1 psi 350 mbar/5 psi devices all others | ±0.025 ±0.008 ±0.005 | ±0.12 ±0.04 ±0.02 | %FSO/°C |
| | Span | | ±0.010 | ±0.04 | |
| Long term stability ⁸ | | | ±0.1 | | %FSO |
| 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 DEVICES^{4, 9}

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

| Part number | Operating pressure | Proof pressure ¹ | Burst pressure ² |
|---------------|--------------------|-----------------------------|-----------------------------|
| 144SC0811BARO | 800...1100 mbara | 4 bara | 8 bara |
| 144SC1216BARO | 12...16 psia | 60 psia | 120 psia |

| Characteristics | | Min. | Typ. | Max. | Unit |
|---|--------|-------|--------|-------|---------|
| 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 (BSL) ⁶ | | | 0.05 | 0.1 | %FSO |
| Thermal effects (-10...60 °C) ¹⁰ | Offset | | ±0.005 | ±0.02 | %FSO/°C |
| | Span | | ±0.010 | ±0.04 | |
| Long term stability ⁸ | | | ±0.1 | | %FSO |
| Response time (10 to 90 %) | | | 1 | | ms |
| Power consumption (no load) | | | 70 | | mW |
| Power supply rejection | Offset | | 0.05 | | %FSO/V |
| | Span | | 0.03 | | |

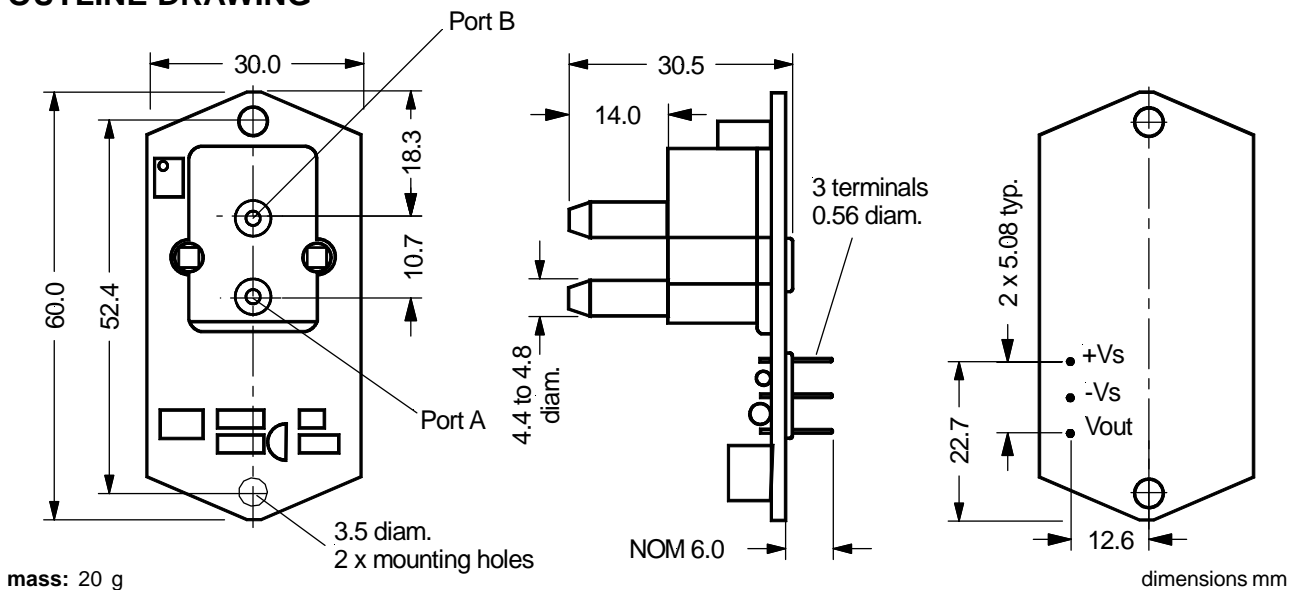
Specification notes:

1. Proof pressure is the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element.
2. Burst pressure is the maximum pressure which may be applied without causing damage to the sensing element or leaks to the housing.
3. The output signal of all differential/gage 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.
4. The output signal of all absolute and barometric devices is proportional to the pressure applied to port A.
5. Full scale span is the algebraic difference between the positive full scale output and the zero pressure offset.
6. Non-linearity refers to the **Best Straight Line** fit measured for offset pressure, full scale pressure and 1/2 full scale pressure.
7. Thermal effects tested and guaranteed from 0...70 °C relative to 25 °C. All specifications shown are relative to 25 °C.
8. Change in output after one year or 1 million pressure cycles.
9. 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.
10. Thermal effects refer to the combined effects of offset and sensitivity shifts, this is true from -10...60°C relative to 25 °C.

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OUTLINE DRAWING^{3,4}



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 |
| Devices highlighted in grey are preferred items. | | For all other devices MOQ may apply. |
| Other pressure ranges and calibrations are available on request. Please contact First Sensor. | | |

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