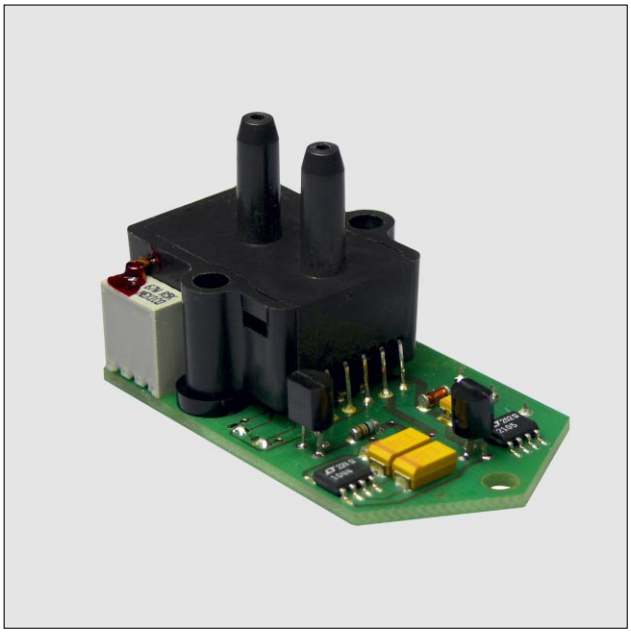
144S...-PCB Series

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

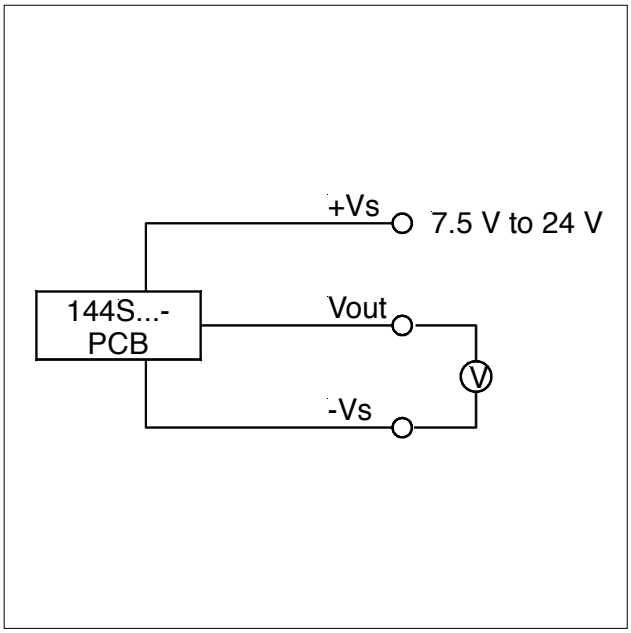
Non-corrosive, non-ionic working fluids, such as dry air and dry gases.

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



First Sensor

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PERFORMANCE CHARACTERISTICS

STANDARD DEVICES[3, 4]

(V_S = 8 V, R_L > 100 kΩ, t_{amb} = 25 °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		±0.025	±0.12	%FSO/°C
		350 mbar/5 psi devices		±0.008	±0.04	
		all others		±0.005	±0.02	
	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		

PERFORMANCE CHARACTERISTICS

BAROMETRIC DEVICES[4, 9]

(V_S = 8 V, R_L > 100 kΩ, t_{amb} = 25 °C)

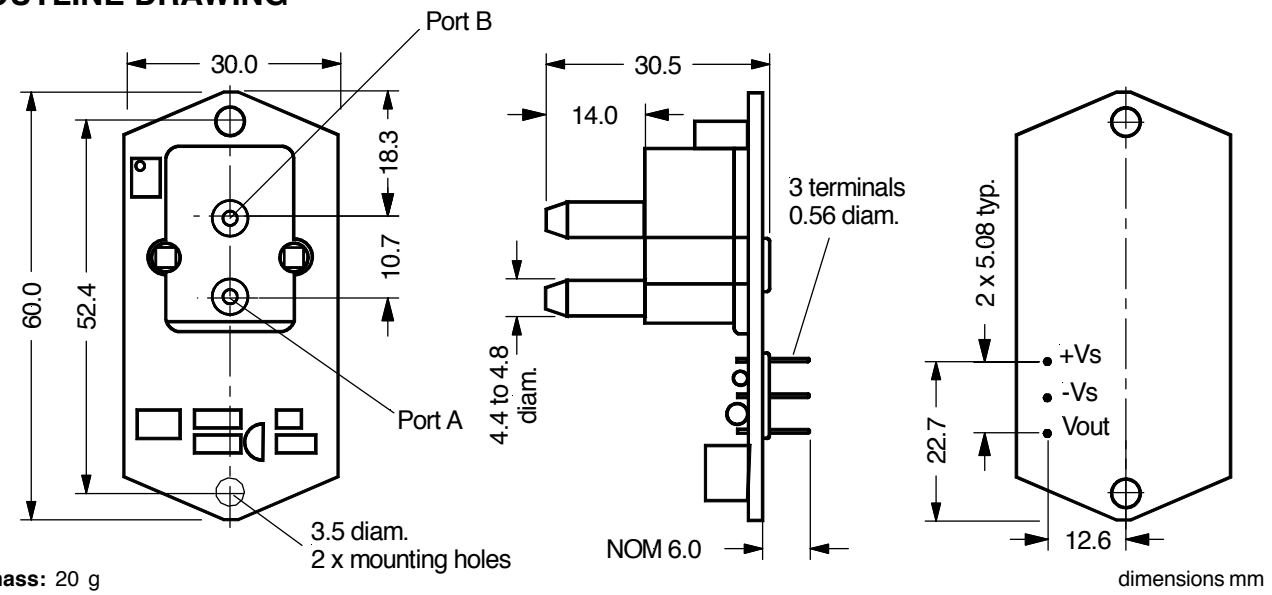
Part number	Operating pressure	Proof pressure[1]	Burst pressure[2]
144SC0811BARO	800...1100 mbara	4 bara	8 bara
144SC1216BARO	12...16 psia	60 psia	120 psia

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 **B**est **S**traight **L**ine 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.

OUTLINE DRAWING[3, 4]



mass: 20 g

dimensions mm

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.		