

140SC...-PCB / 420SC...-PCB Series

Signal conditioned precision pressure transducers

FEATURES

- 1 to 150 psi
absolute, gage or differential pressure
(custom calibrations available)
- 1...6 V or 4...20 mA output
- Internal supply regulation
- Precision temperature compensated
and calibrated
- Special calibrations for small
volumes on request



SERVICE

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

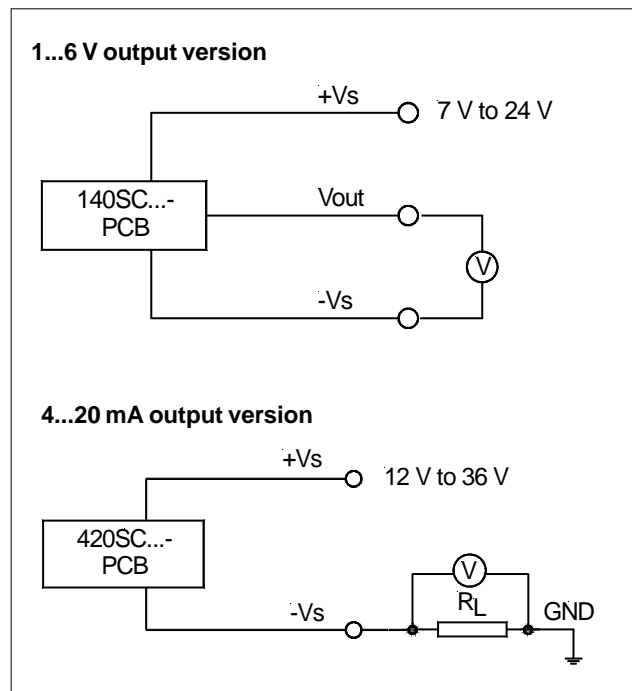
Scale: 1 cm
1 inch

SPECIFICATIONS

Maximum ratings

Supply voltage	
140SC...-PCB	7...24 V
420SC...-PCB ¹	12...36 V
Maximum load current	
140SC...-PCB only	
Source	20 mA
Sink	10 mA
Temperature limits	
Storage	-55 to 100°C
Operating	-40 to 85°C
Compensated	0 to 70°C
Lead temperature (10 sec. soldering)	300°C
Humidity limits	
Pressure inlets only	0 - 100 %RH
Proof pressure ²	
All 1 psi, 3 psi, 5 psi devices	20 psi
All 15 psi devices	30 psi
All 30 psi devices	60 psi
All 100 psi devices	150 psi
All 150 psi devices	200 psi

ELECTRICAL CONNECTION



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PERFORMANCE CHARACTERISTICS

1 - 6 V output version (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					
vacuum gage devices ³	141SC01G-PCB	-1		0	psig
	141SC05G-PCB	-5		0	
	141SC15G-PCB	-15		0	
	141SC30G-PCB	-30		0	
	141SC100G-PCB	-100		0	
differential devices ⁴	142SC01D-PCB	0		1	psid(g)
	142SC05D-PCB	0		5	
	142SC15D-PCB	0		15	
	142SC30D-PCB	0		30	
	142SC100D-PCB	0		100	
	142SC150D-PCB	0		150	
absolute devices ⁵	142SC15A-PCB	0		15	psia
	142SC30A-PCB	0		30	
	142SC100A-PCB	0		100	
pressure/vacuum devices ⁴	143SC01D-PCB	-1		1	psid(g)
	143SC03D-PCB	-2.5		2.5	
	143SC05D-PCB	-5		5	
	143SC15D-PCB	-15		15	
Zero pressure offset	141SC.../142SC...-PCB	0.95	1.00	1.05	V
	143SC...-PCB	3.45	3.50	3.55	
Full scale span ⁶	141SC.../142SC...-PCB	4.95	5.00	5.05	
	143SC...-PCB	2.45	2.50	2.55	
Full scale output		5.90	6.00	6.10	
Output at lowest specified pressure	143SC...-PCB		1.00		
Non-linearity and hysteresis (BSL) ⁷			0.1	0.5	%FSO
Thermal effects ⁸	all 1 psi devices		± 1.5	± 3.0	
Combined offset and span (0 to 70°C)	all others		± 0.5	± 1.0	
Long term stability ⁹			± 0.1		
Response time (10 to 90%)			0.1		ms
Power supply rejection rate	Offset		0.05		%FSO/V
	Span		0.03		

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PERFORMANCE CHARACTERISTICS

4 - 20 mA output version (unless otherwise noted $V_s = 15\text{ V}$, $R_L = 100\ \Omega$, $t_{amb} = 25^\circ\text{C}$)

Characteristics		Min.	Typ.	Max.	Unit	
Operating pressure	differential devices ⁴	420SC01D-PCB	0	1	psid(g)	
		420SC05D-PCB	0	5		
		420SC15D-PCB	0	15		
		420SC30D-PCB	0	30		
		420SC100D-PCB	0	100		
		420SC150D-PCB	0	150		
	absolute devices ⁵	420SC15A-PCB	0	15	psia	
		420SC30A-PCB	0	30		
		420SC100A-PCB	0	100		
	pressure/vacuum devices ⁴	423SC01D-PCB	-1	1	psid	
423SC03D-PCB		-2.5	2.5			
423SC05D-PCB		-5	5			
423SC15D-PCB		-15	15			
Zero pressure offset	420SC...-PCB	3.9	4.0	4.1	mA	
	423SC...-PCB	11.9	12.0	12.1		
Full scale span ⁶	420SC...-PCB	15.8	16.0	16.2		
	423SC...-PCB	7.9	8.0	8.1		
Full scale output			20.0			
Output at lowest specified pressure	423SC...-PCB		4.0			
Non-linearity and hysteresis (BSL) ⁷			± 0.1	± 0.5		
Thermal effects ⁸	Combined offset and span (0 to 70°C)	all 1 psi devices all others	± 1.5	± 3.0		%FSO
			± 0.5	± 1.5		
	(-40 to 0°C, 70 to 100°C)		± 2.0			
Repeatability			± 0.1			
Long term stability ⁹			± 0.1			
Output noise			± 0.04			
Response time (10 to 90%)			0.1	ms		
Power supply rejection rate	Offset		0.05	%FSO/V		
	Span		0.03			

Specification notes:

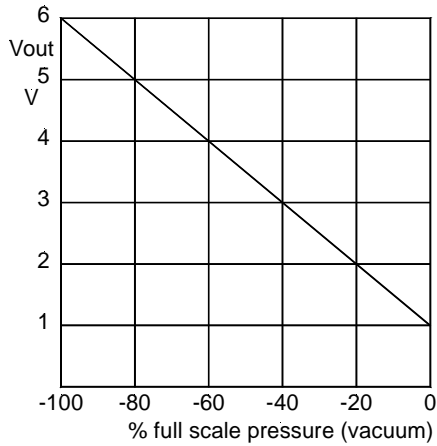
1. The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the [load limitation](#) diagram.
2. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
3. The output signal of all 141SC...-PCB devices is proportional to the vacuum applied to port B, relative to port A, e. g. the output signal increases when pressure is applied to port A relative to port B.
4. The output signal of all 142SC...D-PCB and 143SC...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.
5. The output signal of all 142SC...A-PCB is proportional to the pressure applied to port A.
6. Full scale span is the algebraic difference between the positive full scale output and the zero pressure offset.
7. Non-linearity refers to the **Best Straight Line** fit measured for offset pressure, full scale pressure and 1/2 full scale pressure.
8. Thermal effects tested and guaranteed from 0 - 70°C relative to 25°C. All specifications shown are relative to 25°C.
9. Change in output after one year or 1 million pressure cycles.

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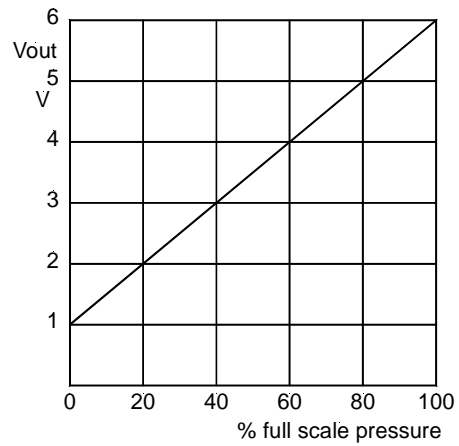
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OUTPUT CHARACTERISTICS

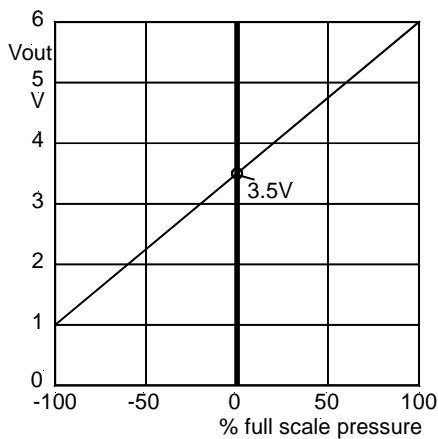
1 - 6 V output versions
Vacuum gage devices
141SC...-PCB



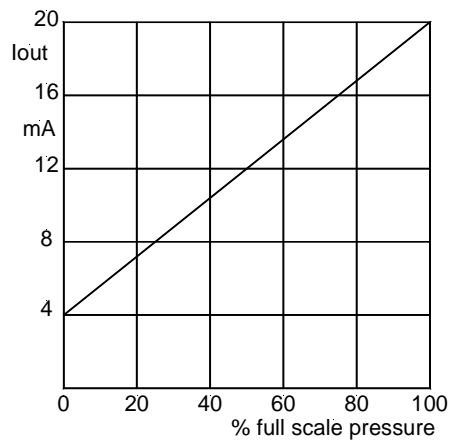
1 - 6 V output versions
Differential devices
142SC...-PCB



1 - 6 V output versions
Pressure/vacuum devices
143SC...-PCB



4 - 20 mA output versions
Differential devices
420SC...-PCB

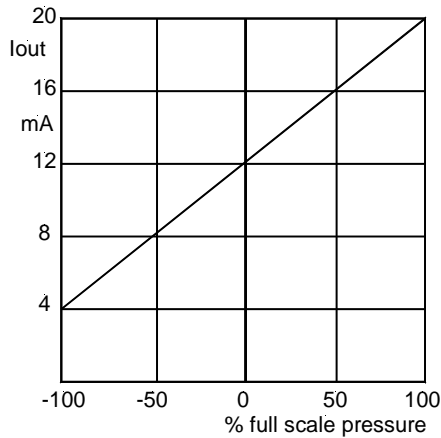


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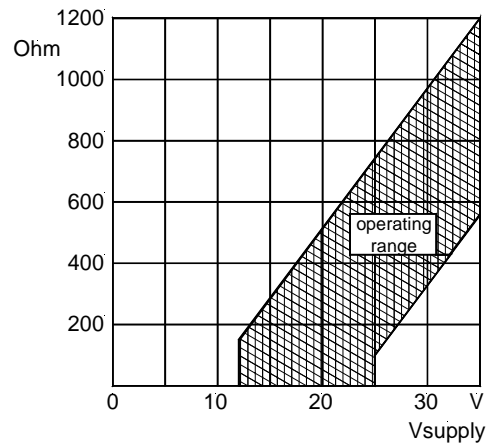
OUTPUT CHARACTERISTICS

4 - 20 mA output versions
Pressure/vacuum devices
423SC...-PCB

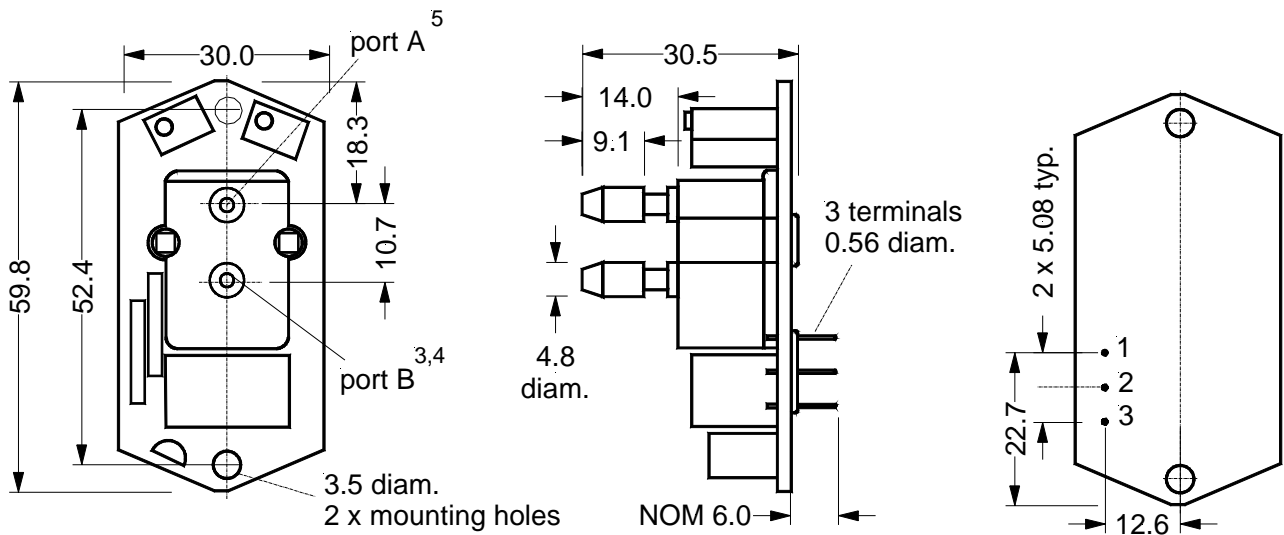


LOAD LIMITATION

4 - 20 mA output versions



OUTLINE DRAWING



mass: 20 g

Pin connection

Pin	Connection	
	1 - 6 V version	4 - 20 mA version
1	+Vs	NC
2	-Vs	-Vs
3	V _{out}	+Vs

dimensions in mm

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ORDERING INFORMATION

Operating pressure		Part number	
		1...6 V output	4...20 mA output
Vacuum gage devices	0 to -1 psig	141SC01G-PCB	---
	0 to -5 psig	141SC05G-PCB	---
	0 to -15 psig	141SC15G-PCB	---
	0 to -30 psig	141SC30G-PCB	---
	0 to -100 psig	141SC100G-PCB	---
Differential/gage devices	0 to 1 psid(g)	142SC01D-PCB	420SC01D-PCB
	0 to 5 psid(g)	142SC05D-PCB	420SC05D-PCB
	0 to 15 psid(g)	142SC15D-PCB	420SC15D-PCB
	0 to 30 psid(g)	142SC30D-PCB	420SC30D-PCB
	0 to 100 psid(g)	142SC100D-PCB	420SC100D-PCB
	0 to 150 psid(g)	142SC150D-PCB	420SC150D-PCB
Absolute devices	0 to 15 psia	142SC15A-PCB	420SC15A-PCB
	0 to 30 psia	142SC30A-PCB	420SC30A-PCB
	0 to 100 psia	142SC100A-PCB	420SC100A-PCB
Pressure/vacuum devices	0 to ± 1 psid(g)	143SC01D-PCB	423SC01D-PCB
	0 to ± 2.5 psid(g)	143SC03D-PCB	423SC03D-PCB
	0 to ± 5 psid(g)	143SC05D-PCB	423SC05D-PCB
	0 to ± 15 psid(g)	143SC15D-PCB	423SC15D-PCB

Custom calibrations available

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