3100 Series

High Pressure Sensing

The 3100 Series high-pressure OEM transducers feature a sputtered thin-film sensor to provide high levels of performance and stability for large volume OEM installations. A wide choice of outputs as well as electrical and pressure connections means that the unit is suitable for most applications without modification. In addition, the compact construction of the 3100 Series makes it ideal for installations where space is at a premium

Principle of Operation

Thin film Strain Gauge Pressure Sensors

Using the well proven Wheatstone Bridge principle, molecular layers are sputtered onto a 17-4 PH stainless steel diaphragm and the circuit is etched to provide excellent resistor definition and uniformity. Sputtered thin film technology allows the design of simple, highly accurate and compact strain gauges deposited onto the back of the sensing diaphragm, which is in direct contact with the media. This method virtually eliminates drift, while offering enhanced sensitivity.

Model 3100 Specifications

Performance

Accuracy RSS*	±0.25% FS
Thermal Effect**	
Compensated Range ℉ (℃)	-40 to +250 (-40 to +125)
Zero/Span Shift %FS/100℉ (%FS/100℃)	1.0 (1.5)
Zero Tolerance	0.5% of Span
Span Tolerance	0.5% of Span
Response Time	<10ms
Long Term Stability	0.1% FS Non-Cumulative
Proof Pressure	See Below
Burst Pressure	See Below
Fatigue Life	Designed for more than 100 M cycles

* RSS of Non-Linearity, Non-Repeatability, and Hysteresis
**Units calibrated at nominal 70℉. Maximum thermal error computed from this datum.

Environmental Data

Operating Temperature ℉ (℃)	-40 TO +250 (-40 TO +125)
Storage Temperature ℉ (℃)	-40 TO +250 (-40 TO +125)
Approvals	
CE	Conforms to European Pressure Directive
EMC	Radiated Immunity is 100V/m

Electrical Data (Voltage)

Circuit	3-Wire
Output	2mV/V (nominal)
	1 to 6 VDC
	1 to 5 VDC
	0.5 to 4.5 VDC
	0 to 5 VDC
	0 to 10 VDC
Excitation	2 Volts above Full Scale, to max 30 Volts @ 4.5 mA
Source and Sinks	2 mA

Electrical Data (Ratiometric)

Output	0.4 to 4.5 VDC @ 4 mA
Excitation	5 VDC ±10%

Electrical Data (Current)[2]

Circuit	2-Wire
Output	4 to 20 mA
Excitation	10 to 30 VDC
	(24 VDC max. above 110℃ applications)
Maximum Loop Resistance	(Supply voltage -10) x 50 ohms

Physical Description

Pressure Port	See Ordering Instructions, Back Page
Wetted Parts	17-4 PH Stainless Steel (Diaphragm)
	304 Stainless Steel (Fittings)
Electrical Connections	See Ordering Instructions, Back Page
Enclosure	IP67 (IP65 for Electrical Code A)
Vibration	40G Peak to Peak Sinusoidal to 2000 Hz
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Weight	35 grams

Temperature Output[1]

Range °F (°C)

Series 3101	-40 to +257 (-40 to +125)
Series 3102	+32 to +176 (0 to +80)
Series 3103	+32 to +212 (0 to +100)
Performance	
Accuracy	3.5% of Temperature Span

1. Temperature outputs are for voltage output pressure sensors only and limited to connections that have 4 pins (Electrical Codes -B, -E, -7, and -8). Requires additional 2 mA of power.
2. For use with pull-down resistors, contact factory before ordering.
3. Pressure Ranges 10,000 psi (1000 bar) and above available with 2T pressure port only.

Specifications subject to change without notice.

Pressure Ranges[3]

PSI 0 to	Proof Pressure	Burst Pressure	Bar 0 to	Proof Pressure	Burst Pressure
100	220	4000	10	22	400
150	330	6000	16	35	640
200	440	8000	25	55	500
300	660	12,000	40	88	800
500	1100	10,000	60	132	1200
600	1320	12.000	100	220	2000
750	1650	15,000	160	352	1600
1000	2300	20,000	250	550	2500
1500	3300	30,000	400	880	4000
2000	4400	20,000	600	1320	2400
2500	5500	25,000	1000	2200	4000
3000	6600	30,000	1600	3520	6400
3500	7700	35,000	2200	2750	2750
4000	8800	40,000			
5000	11,000	50,000			
7500	16,500	30,000			
10,000	22,000	40,000			
15,000	33,000	60,000			
20,000	30,000	30,000			
25,000	37,500	37,500			
30,000	45,000	45,000			
32,000	40,000	40,000			

Applications

- Medical
- Hydraulic Pressure
- HVAC/R Compressors
- Variable Speed Pumps
- Off-Highway Vehicles
- Industrial

Features

- Long-Term Stability Better Than 0.1% FS/Yr
- 0.25% Full Scale Accuracy
- Dual Temperature and Pressure Output on Voltage Units
- Small Footprint (less than 1 inch (25 mm long)
- Choice of mA, mV, Voltage, or Ratiometric outputs
- Reverse Wiring Protected
- Accuracy Specified Over the Full Temperature Range of -40°F to +250° F (-40°C to +125°C)
- Stainless Steel Construction

Benefits

- Low Cost for High Volume OEM Installations
- Thin Film Technology Assures Long-Term Stability
- No Oil Fill to Cause Thermal Instability or Leakage
- Wide Choice of Pressure Ranges from 100 PSI up to 32,000 PSI
- Meets CE and EMC Standards

When it comes to a product to rely on - choose the Model 3100.
When it comes to a company to trust - choose Setra .

ISO 9001: 2000 Certified

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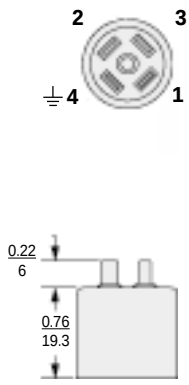
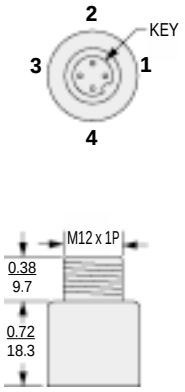
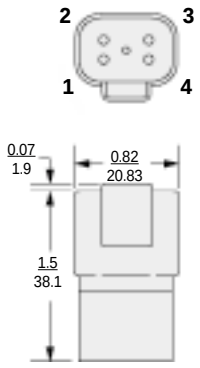
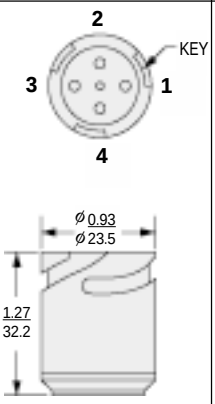
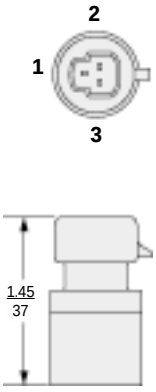
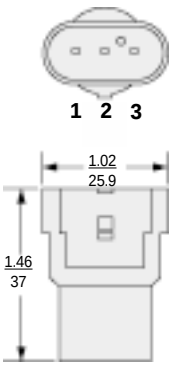
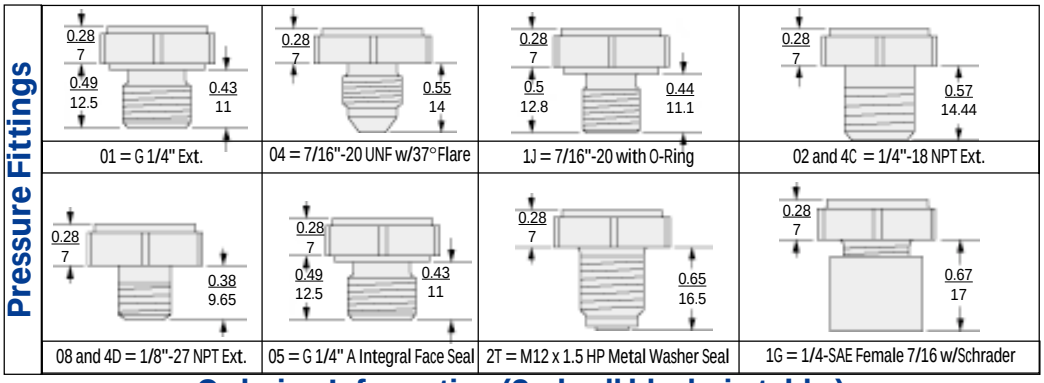
800-257-3872

Electrical Fittings

DIN 9.4mm	M12 x 1P	Deutsch DT04-4P	DIN72585A1-4, 1	Packard Metri Pack	Amp Superseal 1.5
					
Code B	**Code E**	**Code 8**	**Code 7**	**Code 9**	**Code 6**

Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode
1	Vout1 (pressure)	No Connect	VSupply	Supply	Ground	Return	VSupply	Supply	Vout1 (pressure)	No Connect	Vout1 (pressure)	No Connect
2	VSupply	Supply (pressure)	Vout1 Connect	No	VSupply	Supply	Ground	Return	Ground	Return	Ground	Return
3	Vout2 (temp)	No Connect	Ground	Return	Vout2 (temp)	No Connect	Vout1	No	VSupply	Supply	VSupply	Supply
4	Ground	Return	Vout2 (temp)	No Connect	Vout1 (pressure)	No Connect	Vout2 (temp)	No Connect	—	—	—	—

Pressure Fittings



in. / mm

Notes: The diameter of all cans is 0.748" (19mm). Hex is 0.866" (22mm) across flats for (A/F) for deep socket mounting

Ordering Information (Code all blocks in table.)

Example: Part No. 3100B100PG08B for a 3100 Pressure Transducer, 4 to 20 mA output, 100 psig, 1/8-27 NPT Ext pressure fitting., industrial DIN

Model

3100 = 3100

Voltage Units w/Temp. Output

3101[1] = Temp. Output Range: -40°C to +125°C

3102[1] = Temp. Output Range: -0°C to +100°C

3103[1] = Temp. Output Range: -0°C to +80°C

Output

A = 2mV/V (nominal)
B = 4 to 20 mA
C = 1 to 6 VDC
H = 1 to 5 VDC
N = 0.5 to 4.5 VDC
R = 0 to 5 VDC
S = 0 to 10 VDC
T = 0.5 to 4.5 Ratiometric

Ranges

PSI				BAR	
100P[2]	= 100		**20KP**[3]	= 20,000	
150P[2]	= 150		**25KP**[3]	= 25,000	
200P[2]	= 200		**30KP**[3]	= 30,000	
300P[2]	= 300		**32KP**[3]	= 32,000	
500P[2]	= 500				
600P[2]	= 600		**0010**[2]	= 10	
750P[2]	= 750		**0016**[2]	= 16	
10CP[2]	= 1000		**0025**[2]	= 25	
15CP	= 1500		**0040**[2]	= 40	
20CP	= 2000		**0060**[2]	= 60	
25CP	= 2500		**0100**	= 100	
30CP	= 3000		**0160**	= 160	
35CP	= 3500		**0250**	= 250	
40CP	= 4000		**0400**	= 400	
50CP	= 5000		**0600**	= 600	
75CP	= 7500		**1000**[3]	= 1000	
10KP[3]	= 10,000		**1600**[3]	= 1600	
15KP[3]	= 15,000		**2200**[3]	= 2200	

Pressure Type

G = Gauge
S = Sealed Gauge
C = Compound

Pressure Fittings

08 = 1/8-27 NPT Ext.
02 = 1/4-18 NPT Ext.
4B = Schraeder Deflater Long
4C = 1/4 NPTF Dryseal Ext.
4D = 1/8 NPTF Dryseal Ext.
04 = 7/16-20 Ext. (SAE #4, J514)
1J = 7/16-20 Ext. (SAE #4, J1926-2)
1G = 1/4 -SAE Female 7/16 UNF w/Schraeder Deflater/European Threads
01 = G 1/4 Ext.
05 = G 1/4 Ext. Face Seal
0L = M12 x 1.5 (<1000 bar, <15,000 psi)
2T = M12 x 1.5 (6g) (≥1000 bar, ≥15,000 psi)

Electrical Connections[4]

B = Industrial DIN (mating connector not supplied)
E = M12xP,4-Pin
6 = AMP Superseal 1.5 Series
7 = DIN 72585 Bayonet A1 - 4.1
8 = Deutsch DT04-4P
9 = Packard Metri Pack

Notes:
1. Temperature outputs are for voltage output pressure sensors only (applies to codes A, C, H, N, and T only) and limited to connections that have 4 pins (Electrical Code B, E, 7, and 8). Accuracy is 3.5% of temperature span. Requires additional 2mA of power.
2. Sealed gauge available as an option on ranges <1500 psi (<100 bar).
3. Ranges 1000 bar (10,000 psi) and above available with 2T pressure port only.
4. Mating connectors available, consult factory.

Please contact factory for versions not shown.

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