

Model 3100 Standard Model 3200 Heavy Duty *Pressure Transducers*



The 3100/3200 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 3100/3200 Series makes it ideal for installations where space is at a premium.

The Model 3200 is designed to handle environments where positive or negative pressure spikes are a concern. Proof pressures on the Model 3200 are 3x full scale on 75 psi up to 10,000 psi pressure ranges.

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 3100/3200 Specifications

Performance

Accuracy RSS* $\pm 0.25\%$ FS

Thermal Effect**

Compensated Range °F (°C) -40 to +250 (-40 to +125)

Zero/Span Shift %FS/100°F (%FS/100°C) 1.0 (1.5)

Zero Tolerance $\pm 0.5\%$ of Span

Span Tolerance $\pm 0.5\%$ of Span

Response Time 1ms

Long Term Stability $\pm 0.1\%$ FS Non-Cumulative

Proof Pressure See Table Below

Burst Pressure See Table Below

Fatigue Life Designed for more than 100 M cycles

* RSS of Non-Linearity, Non-Repeatability, and Hysteresis

**Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

Environmental Data

Operating Temperature °F (°C) -40 TO +250 (-40 TO +125)

Storage Temperature °F (°C) -40 TO +250 (-40 TO +125)

Approvals

CE Conforms to European Pressure Directive

EMC Radiated Immunity is 100V/m

RoHS Fully Compliant

Electrical Data (Voltage)*

Circuit 3-Wire

Output 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

*Reverse Wiring Protected

Electrical Data (Ratiometric)

Output 0.5 to 4.5 VDC @ 4 mA

Excitation 5 VDC $\pm 10\%$

Electrical Data (Current)²

Circuit 2-Wire

Output 4 to 20 mA

Excitation 8 to 30 VDC

(24 VDC max. above 110°C applications)

Maximum Loop Resistance (Supply voltage -8) 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 Output¹

Range °F (°C)

Series 3101 -40 to +250 (-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.

Applications

- Medical
- Hydraulic Pressure
- HVAC/R Compressors
- Variable Speed Pumps
- Refrigeration
- Industrial/OEM
- Pumps

Features

- Long-Term Stability Better Than $\pm 0.1\%$ 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, 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 50 PSI up to 32,000 PSI
- ◆ Meets CE and EMC Standards
- ◆ Fully RoHS Compliant

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

When it comes to a company to trust - choose Setra.



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800-257-3872

Pressure Specifications

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment

The data in the tables is "times rate ranges" (xRR).

All heavy duty pressure transducers are fitted with a restricting orifice by default.

3100 Standard Duty

Rated Range	psi bar	75 5	100 7	150 10	230 16	300 20	500 35	1000 70	1500 100	2300 160	3600 250	6000 400	10000 700	14500 1000	26000 1800	32000 2200
Max. Over Pressure (<)		X3.0				X2.0						X1.4				
Min. Burst (>)		X40				X20			X10			>4000 bar				

3200 Heavy Duty

Rated Range	psi bar	75 5	100 7	150 10	230 16	300 20	500 35	1000 70	1500 100	2300 160	3600 250	6000 400	10000 700	14500 1000	26000 1800	
Max. Over Pressure (<)		X3.0										X2.5		X1.7		
Min. Burst (>)		X40				X20			X10			>4000 bar				

Specifications subject to change without notice.

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	V _{out1} (pressure)	No Connect	V _{supply}	Supply	Ground	Return	V _{supply}	Supply	V _{out} (pressure) C	No Connect	V _{out1} (pressure)	No Connect
2	V _{supply}	Supply (pressure)	V _{out1} Connect	No	V _{supply}	Supply	Ground	Return	Ground	Return	Ground	Return
3	V _{out2} (temp)	No Connect	Ground	Return	V _{out2} (temp)	No Connect	V _{out1}	No	V _{supply} A	Supply	V _{supply}	Supply
4	Ground	Return	V _{out2} (temp)	No Connect	V _{out1} (pressure)	Connect	V _{out2} (temp)	No Connect	B	—	—	—

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

Pressure Fittings	01 = G 1/4" Ext.		04 = 7/16"-20 UNF w/37° Flare		1J = 7/16"-20 with O-Ring		02 and 4C = 1/4"-18 NPT Ext. (4C is NPTF Dryseal)	
	08 and 4D = 1/8"-27 NPT Ext. (4D is NPTF Dryseal)	05 = G 1/4" A Integral Face Seal	2T = M12 x 1.5 HP Metal Washer Seal	1G = 1/4-SAE Female 7/16 w/Schraeder Deflater				

in.
mm

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	Output	Ranges	Pressure Type	Pressure Fittings	Electrical Connections ⁴
3100 = 3100	B = 4 to 20 mA	PSI BAR	G = Gauge	08 = 1/8-27 NPT Ext.	B = Industrial DIN
3200 = 3200	C = 1 to 6 VDC	075P ² = 75 0005 ² = 5	S = Sealed Gauge	02 = 1/4-18 NPT Ext.	(mating connector not supplied)
Voltage Units w/Temp. Output	H = 1 to 5 VDC	100P ² = 100 0007 ² = 7	C = Compound	4C = 1/4 NPTF Dryseal Ext.	E = M12xP4-Pin
3101 ¹ = Temp. Output	N = 0.5 to 4.5 VDC	150P ² = 150 0010 ² = 10		4D = 1/8 NPTF Dryseal Ext.	6 = AMP Superseal 1.5 Series
Range: -40°C to +125°C	R = 0 to 5 VDC	230P ² = 230 0016 ² = 16		04 = 7/16-20 Ext. (SAE #4, J514)	7 = DIN 72585 Bayonet A1 - 4.1
3102 ¹ = Temp. Output	S = 0 to 10 VDC	300P ² = 300 0020 ² = 20		1J = 7/16-20 Ext. (SAE #4, J1926-2)	8 = Deutsch DT04-4P
Range: -0°C to +100°C	T = 0.5 to 4.5 Ratiometric	500P ² = 500 0035 ² = 35		1G = 1/4 -SAE Female 7/16 UNF w/Schraeder Deflater/European Threads	9 = Packard Metri Pack
3103 ¹ = Temp. Output		10CP ² = 1000 0070 ² = 70		1P = SAE6 (9/16-18UNF 2A)	
Range: -0°C to +80°C		15CP = 1500 0100 = 100		01 = G 1/4 Ext.	
3201 ¹ = Temp. Output		23CP = 2300 0160 = 160		05 = G 1/4 Ext. Face Seal	
Range: -40°C to +125°C		35CP = 3600 0250 = 250		0L = M12 x 1.5 (<1000 bar, <15,000 psi)	
3202 ¹ = Temp. Output		60CP = 6000 0400 = 400		2T = M12 x 1.5 (6g) (≥1000 bar, ≥15,000 psi)	
Range: -0°C to +100°C		10KP ³ = 10,000 0700 = 700			
3203 ¹ = Temp. Output		15KP ³ = 14,500 1000 ³ = 1000			
Range: -0°C to +80°C		26KP ³ = 26,000 1800 ³ = 1800			
		32KP ³⁵ = 32,000 2200 ³ = 2200			

Notes:

- Temperature outputs are for voltage output pressure sensors only (applies to codes 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.
- Sealed gauge available as an option on ranges < 1500 psi (< 100 bar).
- Ranges 1000 bar (10,000 psi) and above available with 2T pressure port only.
- Mating connectors available, consult factory.
- Model 3200 not available in 32,000 psi (2200 Bar) Ranges.

Accessories — Mating Connectors

Part NO.	Description	For use on Elect Code #	Part NO.	Description	for use on elect. Code #
557230	Mini - Din Connector, Strain Relief	B	557702	Din 72585 Twist Lock Mate Kit	7
557703-01MO	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Deutsch p/n:Housing Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)	8
557703-03MO	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Delphi Packard MetriPack p/n Body 12065286; Seal 12052893. Consult Delphi for Contacts)	9
557703-04MO	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E	218760	Packard Mate Kit	9
557703-05MO	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E	581	Packard Cord Set 3' Long (18 AWG PVC Cable - White 1, Black 2, Red 3)	9
	Recommended Mating Parts (AMP p/n:Housing 282087-1; Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)	6	582	Packard Cord Set 6' Long (18 AWG PVC Cable - White 1, Black 2, Red 3)	9
557701	AMP Superseal Mate Kit	6			
210729	AMP 3.5' Cable Cord Set - Clear Pos 1, Black Pos 2, Red Pos 3	6			
210730	AMP 12" Flying Leads Cord Set - White Pos 1, Black, Red Pos 3	6			
	Recommended Mating Parts (AMP p/n:Socket Conn. 1-967325-1, Consult AMP for Contacts, Wire Seal and Strain Relief options)	7			