

**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 features a thicker diaphragm and a restrictor (optional) to handle environments where extreme 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.

When it comes to a product to rely on - choose the Model 3100/3200.  
When it comes to a company to trust - choose Setra .



# Model 3100/3200 Specifications

## Performance

Accuracy RSS\*

Model 3100	±0.25% FS
Model 3200	0.5% FS for <1000 PSI (60 Bar)

Thermal Effect\*\*

Compensated Range °F (°C)	-40 to +257 (-40 to +125)
Model 3100	
Zero/Span Shift %FS/100°F (%FS/100°C)	0.83 (1.5)
Model 3200	
Zero/Span Shift %FS/100°F (%FS/100°C)	0.94 (2.0)
	for <1000 PSI (60 Bar)

Zero Tolerance

Model 3100	±0.5% of Span
Model 3200	1% FS for <1000 PSI (60 Bar)

Span Tolerance

Model 3100	±0.5% of Span
Model 3200	1% FS for <1000 PSI (60 Bar)

Response Time

1ms

Long Term Stability

±0.2% FS/YR 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 +257 (-40 TO +125)

Storage Temperature °F (°C) -40 TO +257 (-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

## 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	50	100	150	230	300	500	1000	1500	2300	3600	6000	10000	15000	26000	32000
	bar	4	7	10	16	20	35	70	100	160	250	400	700	1000	1800	2200
Max. Over Pressure (<)		X3.0					X2.0					X1.4				
Min. Burst (>)		X40					X20			X10			>4000 bar			

### 3200 Heavy Duty

Rated Range	psi	50	100	150	230	300	500	1000	1500	2300	3600	6000	10000	15000	25000	
	bar	4	7	10	16	20	35	70	100	160	250	400	700	1000	1800	
Max. Over Pressure (<)		X3.0										X2.5				
Min. Burst (>)		X40					X20			X10			>4000 bar			

## Electrical Data (Voltage) Cont'd

Excitation 2 Volts above Full Scale to max 30 Volts @ 4.5 mA (6.5 mA on Dual Output Version.)

Source and Sinks 2 mA

\*Reverse Wiring Protected

## Electrical Data (Ratiometric)

Output 0.4 to 4.5 VDC @ 4 mA (6.5 mA on Dual Output Version.)

Excitation 5 VDC ±10%

## Electrical Data (Current)

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 (Random Vibration: 20 to 1000 Hz @ approx. 40G Peak per MIL-STD-810E)

Shock Withstands free fall to IEC 68-2-32 procedure 1

Weight 35 grams

## Temperature Output<sup>1</sup>

### Range °F (°C)

Series 3101/3201 -40 to +250 (-40 to +125)

Series 3102/3202 +32 to +212 (0 to +100)

Series 3103/3203 +32 to +176 (0 to +80)

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 ±0.1% FS/Yr
- 0.25% Full Scale Accuracy
- Dual Temperature and Pressure Output on Voltage Units
- Small Footprint (less than 1 inch Dia. (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



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800-257-3872

Specifications subject to change without notice.

# Electrical Fittings

Din 9.4 mm	M12 x 1P	Deutsch DT4-4P	DIN72585A1-4, 1	Packard Metri Pack	Amp Supereal 1.5	Integral Cable/Flying Leads
<b>Code B</b>	<b>Code E</b>	<b>Code 8</b>	<b>Code 7</b>	<b>Code 9</b>	<b>Code 6</b>	<b>Code F</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

<b>OL = M12 x 1.5</b>	<b>O1 = G1/4 Ext.</b>	<b>1G = 1/4-SAE Female 7/16 UNF w/Schraeder</b>	<b>1J = 7/16-20 Ext. (SAE#4, J1926-2) w/O-Ring</b>	<b>1P = SAE6 (9/16-18UNF 2A)</b>	<b>O2 = 1/4-18 PT Ext.</b>	<b>OE = Female 1/4-18NPT</b>
<b>2T = M12 x 1.5</b>	<b>O4 = 7/16-20 Ext. (SAE #4, J514 w/37° Flare)</b>	<b>4C = 1/4NPTF Dryseal EXT.</b>	<b>4D = 1/8NPTF Dryseal EXT.</b>	<b>O5 = G 1/4 Ext. Face Seal</b>	<b>O8 = 1/8-27 NPT Ext.</b>	<b>OK = M14 x 1.5 Straight</b>

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 <sup>4</sup>	Restrictor	Cable
3100 = 3100	B = 4 to 20 mA	PSI BAR	G = Gauge	O8 = 1/8-27 NPT Ext.	B = Industrial DIN	(Available on 3200, only)	Length for
3200 = 3200	C = 1 to 6 VDC	050P <sup>2,6</sup> = 50 0004 <sup>2,6</sup> = 4	S = Sealed Gauge <sup>2</sup>	O2 = 1/4-18 NPT Ext.	(mating connector not supplied)	O = No Restrictor	Elec. Conn.
Voltage Units w/Temp. Output	H = 1 to 5 VDC	075P <sup>2</sup> = 75 0005 <sup>2</sup> = 5	C = Compound	4C = 1/4 NPTF Dryseal Ext.	E = M12xP, 4-Pin	R = Restrictor	Code F
3101 <sup>1</sup> = Temp. Output	N = 0.5 to 4.5 VDC	100P <sup>2</sup> = 100 0007 <sup>2</sup> = 7		4D = 1/8 NPTF Dryseal Ext.	F = Integral Cable/Flying Leads		A = 2 FT.
Range: -40°C to +125°C	R = 0 to 5 VDC	150P <sup>2</sup> = 150 0010 <sup>2</sup> = 10		O4 = 7/16-20 Ext. (SAE #4, J514) w/37° Flare	6 = AMP Superseal 1.5 Series		B = 5 FT.
3102 <sup>1</sup> = Temp. Output	S = 0 to 10 VDC	230P <sup>2</sup> = 230 0016 <sup>2</sup> = 16		1J = 7/16-20 Ext. (SAE #4, J1926-2) w/O-Ring	7 = DIN 72585 Bayonet A1 - 4.1		C = 10 FT.
Range: -0°C to +100°C	T = 0.5 to 4.5 V	300P <sup>2</sup> = 300 0020 <sup>2</sup> = 20		1G <sup>5</sup> = 1/4-SAE Female 7/16 UNF	8 = Deutsch DT04-4P		D = 15 FT.
3103 <sup>1</sup> = Temp. Output	Ratiometric	500P <sup>2</sup> = 500 0035 <sup>2</sup> = 35		w/Schraeder Deflater/European Threads	9 = Packard Metri Pack		
Range: -0°C to +80°C		10CP <sup>2</sup> = 1000 0070 <sup>2</sup> = 70		1P = SAE6 (9/16-18UNF 2A)	F = Cable/Flying Lead		
3201 <sup>1</sup> = Temp. Output		15CP <sup>2</sup> = 1500 0100 <sup>2</sup> = 100		O1 = G 1/4 Ext.			
Range: -40°C to +125°C		23CP = 2300 0160 = 160		O5 = G 1/4 Ext. Face Seal			
3202 <sup>1</sup> = Temp. Output		36CP = 3600 0250 = 250		OL = M12 x 1.5 (<1000 bar, <15,000 psi)			
Range: -0°C to +100°C		60CP = 6000 0400 = 400		2T <sup>3</sup> = M12 x 1.5 (6g) (≥1000 bar, ≥15,000 psi)			
3203 <sup>1</sup> = Temp. Output		10KP = 10,000 0700 = 700		OK = M14 x 1.5 Straight			
Range: -0°C to +80°C		15KP <sup>3</sup> = 15,000 1000 <sup>3</sup> = 1000		OE <sup>5</sup> = Female 1/4-18NPT			
		26KP <sup>3</sup> = 26,000 1800 <sup>3</sup> = 1800					
		32KP <sup>35</sup> = 32,000 2200 <sup>3</sup> = 2200					

Notes:  
 1. Temperature outputs are for voltage output pressure sensors only (applies temperature span. Requires additional 2mA of power).  
 2. Sealed gauge not available on ranges ≤1500 psi (≤100 bar).  
 3. Ranges 1000 bar (15,000 psi) and above available with 2T pressure port only.  
 4. For use with pull-up or pull-down resistors, contact factory.  
 5. Pressure ports OE and TG are NOT available with the Restrictor option.  
 6. 0 to 50 PSI (4 bar) - Not available with 4 to 20 mA or 0 to 10 VDC outputs.

## 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	210730	AMP 12" Flying Leads Cord Set - White Pos 1, Black, Red Pos 3	6
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (AMP p/n: Socket Conn. 1-967325-1, Consult AMP for Contacts, Wire Seal and Strain Relief options)	6
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E	557702	Din 72585 Twist Lock Mate Kit	7
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Deutsch p/n: Housing Plug DT064S-P012; Wedge W45-P012; Sockets 4X 0462-201-1631)	8
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E	577	Packard Mate Kit	9
557701	AMP Superseal Mate Kit	6	581	Packard Cord Set 3' Long (18 AWG PVC Cable - White 1, Black 2, Red 3)	9
210729	AMP 3.5' Cable Cord Set - Clear Pos 1, Black Pos 2, Red Pos 3	6	582	Packard Cord Set 6' Long (18 AWG PVC Cable - White 1, Black 2, Red 3)	9

While we provide application assistance on all Setra products, both personally and through our literature, it is the customer's responsibility to determine the suitability of the product in the application.

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