

# Heavy Duty OEM Industrial Pressure Transducer

The Model 3200 sputtered thin film pressure sensor is designed for OEMs who require top of the line performance, reliability, stability and maximum durability at an affordable price. The Model 3200 is ideal for the most heavy duty industrial applications by providing the maximum performance to durability ratio available. The Model 3200 offers exceptional ±0.5% FS accuracy in pressure ranges from 75 PSI to 32,000 PSI; features an all welded stainless steel construction for a robust design, and IP67 seal for moisture and humidity protection. The Model 3200 offers a variety of different outputs, pressure connectors and electrical connectors, to satisfy the most challenging application requirements.



The Model 3200 is a heavy duty pressure device with long term stability, product reliability and accuracy built in. The compact welded stainless steel design is constructed to protect the sensor in the most demanding of industrial environments. The Model 3200 provides a 3x overpressure (0 to 10k PSI) and a 2.5x overpressure (10k to 14.5 PSI) rating, ensuring that the sensor does not fail during unexpected pressure spikes. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration.

#### **Best in Class Price-to-Performance**

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than 0.005%°C prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

#### **Unrivaled Quality**

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 3200 failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues, Setra takes this seriously which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.



- >2.5x FS Proof Pressure
- High Quality: <0.1% Failure Rate
- Long Term Stability (<0.1%FS/YR)

#### Model 3200 Features:

- No Oil Fill Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- ±0.5% FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint Less than 1" Diameter
- Choice of Current, Voltage or Ratiometric Outputs
- Reverse Wiring Protection
- Accuracy Specified Over Full Temperature Range
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure\*

\*Range Dependent

## **Applications:**

- Power Generation
- Hydraulic Systems
- Booster Pump Systems
- Irrigation Systems
- Off Highway Vehicles

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## **GENERAL SPECIFICATIONS**

	Pressure Range PSI (BAR)         Proof Pressure (x Full Scale)         Burst Pressure (x Full Scale)           50-300 (3.5-25)         40 x FS           500-1,500 (35-100)         20 x FS           2,000-6,000 (160- 400)         3.00 x FS						
	_						
	50-300 (3.5-25)		40 x FS				
	500-1,500 (35-100)		20 x FS				
	, ,	3.00 x FS	10 x FS				
	7,500-9,000 (600)						
	10,000 (700)						
İ	15,000 (1,000)	2.50 x FS	>60,000 PSI (4,000 Bar)				
	25,000 (1,600)	Z.50 X F5	(1,000 bul)				

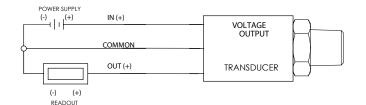
PRESSURE CAPABILITY

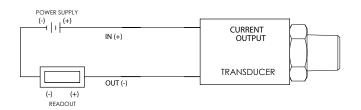
The data in this table is "times rate ranges" (xRR)

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.

Performance Data		Physical Des	cription
Accuracy <sup>1</sup>	±0.5% FS	Pressure Port	See Ordering Instructions
Thermal Effects <sup>2</sup>		Enclosure	IP67 (IP65 for Electrical Code A)
Compensated Range °F(°C)	-40 to +221 (-40 to +125)	Elec. Connections	See Ordering Instructions
Zero/Span Shift %FS/100°F (%FS/100°C)	0.94 (2.0) for <1000 PSI (60 BAR)	Wetted Parts	17-4PH SS (Diaphragm), 304 SS Fittings
Zero/Span Tolerance	1% FS for <1000 PSI (60 BAR)	Vibration	40G Peak to Peak Sinusoidal to 2000Hz (Random
Response Time	1ms		17-4PH SS (Diaphragm), 304 SS Fittings  40G Peak to Peak Sinusoidal to 2000Hz (Randovibration: 20 to 1000Hz @ approx. 40G Peak pmL-STD-810E)  Withstand free fall to IEC 68-2-32 procedure 1 35 Grams  1ta (Voltage) <sup>6</sup> 3-Wire (Exc, Out, Com)  1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VIO to 10 VDC <sup>7</sup>
Long Term Stability	±0.2% FS for <1000 PSI (60 BAR)	Shock	Withstand free fall to IEC 68-2-32 procedure 1
Proof/Burst Pressure	See Table	Weight	35 Grams
Fatigue Life	Designed for more than 100M cycles	Electrical Da	ta (Voltage) <sup>6</sup>
Temp. Output Range °F(°C)3,4,5	-40 to +221 (-40 to +125)	Circuit	3-Wire (Exc, Out, Com)
Operating/Storage Temp °F(°C) <sup>3,4,5</sup> -40 to +221 (-40 to +125)		Output	1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VDC, 0 to 10 VDC <sup>7</sup>
Electrical Data (Ration	netric)	Excitation	2 Volts above FS to max 30 Volts @ 4.5 mA (6.5mA
Output	0.5 to 4.5 VDC @ 4mA (6.5 mA on Dual Output Version)		Dual Output Version)
Excitation	5VDC ± 10%	Source & Sinks	2mA
Options		Electrical Da	ita (Current)
Full miswire protection between all signa		Circuit	2-Wire
Full short-circuit protection for Vout1 to 0 Ratiometric output not available	V or Vout1 connected to supply, indefinitely.	Output	4 to 20mA
Supply Voltage must be 4V above the mass worse-case customer output leads.	ximum Vout1 output. This also accounts for	Excitation	8 to 30 VDC (24 VDC max. above 110° applications)
		Max. Loop Resistance	(Supply Voltage-8) x50 ohms

## **WIRING**





<sup>&</sup>lt;sup>1</sup>RSS of Non-Linearity, Hysteresis, and Non-Repeatability .
<sup>2</sup>Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.

<sup>&</sup>lt;sup>3</sup>Temperature outputs are for voltage output pressure sensors only and limited to connections that have 4 pins (Electrical Codes -D, -E, -8).

<sup>4</sup>Requires additional 2 mA of power.

For use with pull-down resistors, contact factory before ordering.

Reverse Wiring Protected.

<sup>7</sup>Not available for pressure ranges lower than 100 PSI (7 BAR)





# **ELECTRICAL FITTINGS**

	Din 9.4 mm		M12	x 1P	Amp Sup	erseal 1.5	Deutsc	h DT4-4P	Packar	d Metri Pac	k	3-Pi	n Deutsch	
2 (10) 1 0.28 (7) 1 0.87 (21.8)		0.38 (9.7) + 0.71 (18) - 0.75 (19		1.46 (37)	1 2 3	1.50 (38)	1 2	1.53 (39)	A B		1.02	25.86) A 1.63 (41.38)		
	Cod	le B	Coc	le E	Co	de 6	Co	de 8	C	ode 9		Co	ode C	
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 <sub>out</sub> 1 (pressure)	No Connect	V <sub>supply</sub>	$V_{\text{supply}}$	V <sub>out</sub> 1 (pressure)	No Connect	Ground	Return	V <sub>out</sub> 1 (pressure)	No Connect	С	V <sub>supply</sub>	$V_{\text{supply}}$	A
2	V <sub>supply</sub>	$V_{\text{supply}}$	V <sub>out</sub> 1 (pressure)	No Connect	Ground	Return	V <sub>supply</sub>	V <sub>supply</sub>	Ground	Return	A	Ground	Return	В
3	V <sub>out</sub> 2 (temp)	No Connect	Ground	Return	V <sub>supply</sub>	$V_{\text{supply}}$	V <sub>out</sub> 2 (temp)	No Connect	V <sub>supply</sub>	$V_{\text{supply}}$	В	V <sub>out</sub> 1 (pressure)	No Connect	С
4	Ground	Return	V <sub>out</sub> 2 (temp)	No Connect	_	_	V <sub>out</sub> 1 (pressure)	No Connect	_	_		_	_	

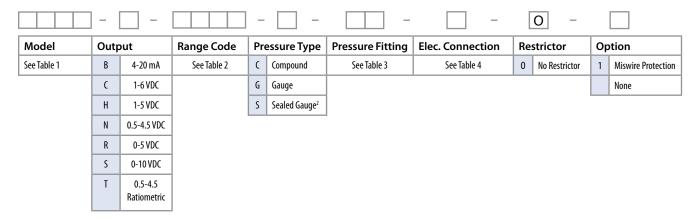
# **PRESSURE FITTINGS**

SAE Dimensions in Inches	0.28 (7)	0.28 (7)	0.28 (7)	0.28 (7) 0.44 (111)	0.28 (7)
Fitting Code	OL = M12 x 1.5	01 = G1/4 Ext.	1G = 1/4-SAE Female 7/16 UNF w/Schraeder	1J = 7/16-20Ext.(SAE#4, J1926- 2)w/0-Ring	1P = SAE6 (9/16-18UNF 2A)
Torque	28-30 NM	30-35 NM	18-20 NM	18-20 NM	18-20 NM
	25 [10.3] .cs	0.28 (7)	0.28(7)	0.28 (7)   0.38 (10)	0.28 (7)
Fitting Code	2T = M12 x 1.5	04 = 7/16-20 Ext. (SAE #4, J514 w/37°Flare	4C = 1/4NPTF Dryseal EXT.	4D = 1/8NPTF Dryseal EXT.	05 = G 1/4 Ext. Face Seal
Torque	30-35 NM	15-16 NM	2-3 TFFT*	2-3 TFFT*	Dimensions: in. (mm)
	0.28 (7)	0.28 (7)	0.28(7)	0.37 (10) 0.35 (11)	
Fitting Code	02 = 1/4-18 PT Ext.	OE = Female 1/4-18NPT	08 = 1/8-27 NPT Ext.	OK = M14 x 1.5 Straight	
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	

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### **ORDERING INFORMATION**



#### **TABLE 1: MODEL SPEC**

CODE	DESCRIPTION				
3200	Std. 3200				
Voltage Units w/Temp. Ouput					
3201 <sup>1</sup>	Temp. Output Range: -40°C to +125°C				
3202 <sup>1</sup>	Temp. Output Range: -0°C to +100°C				
3203 <sup>1</sup>	Temp. Output Range: -0°C to +80°C				

## **TABLE 4: ELEC. SPEC**

CODE	DESCRIPTION
В	Industrial DIN
C	3-Pin Deutsch (Sealed Only)
E	M12xP,4-Pin
6	AMP Superseal 1.5 Series
8	Deutsch DT04-4P
9	Packard Metri Pack

#### **TABLE 2: RANGE SPEC**

RANGE CODE	PSI	RANGE CODE	BAR
050P <sup>2,6</sup>	50	0004 <sup>2,6</sup>	4
075P <sup>2</sup>	75	0005 <sup>2</sup>	5
100P <sup>2</sup>	100	0007 <sup>2</sup>	7
150P <sup>2</sup>	150	0010 <sup>2</sup>	10
230P <sup>2</sup>	230	0016 <sup>2</sup>	16
250P	250	0020 <sup>2</sup>	20
300P <sup>2</sup>	300	0035 <sup>2</sup>	35
500P <sup>2</sup>	500	0070 <sup>2</sup>	70
10CP <sup>2</sup>	1000	0100 <sup>2</sup>	100
15CP <sup>2</sup>	1500	0160	160
23CP	2300	0250	250
36CP	3600	0400	400
60CP	6000	0700	700
10KP	10000	1000³	1000
15KP <sup>3</sup>	15000	1800³	1800
25KP <sup>3</sup>	25000	1600³	1600
32KP <sup>3,5</sup>	32000		

### **TABLE 3: FITTING SPEC**

CODE	DESCRIPTION			
08	1/8-27 NPT Ext.			
02	1/4-18 NPT Ext.			
4C	1/4 NPTF Dryseal Ext.			
4D 1/8 NPTF Dryseal Ext.				
04	7/16-20 Ext. (SAE #4, J514) w/37° Flare			
1J	7/16-20 Ext.(SAE #4, J1926-2) w/0-Ring			
1G⁵	1/4 - SAE Female 7/16 UNF w/ Schraeder Deflater/European Threads			
1P SAE6 (9/16-18UNF 2A				
01 G 1/4 Ext.				
05	G 1/4 Ext. Face Seal			
0L	M12 x 1.5 (<1000 bar, <15,000 PSI)			
2T³ M12 x 1.5 (6g) (≥1000 bar, ≥15,000 PS				
OK	M14 x 1.5 Straight			
0E	Female 1/4-18NPT			

#### **NOTES**

<sup>1</sup>Temperature outputs are for voltage output pressure sensors only (applies temperature span. Requires additional 2mA of power.

 $^2$  Sealed gauge not available on ranges  $\leq$  1500 PSI ( $\leq$  100 bar).

<sup>3</sup> Ranges 1000 bar (15,000 PSI) and above available with 2T pressure port only. Ranges above 1,000 BAR are not UL Labeled.

<sup>4</sup>For use with pull-up or pull-down resistors, contact factory.

<sup>5</sup> Pressure ports OE and 1G 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.

<sup>7</sup>Temperature outputs not available with Option 1 Miswire Protection PCB Ratiometric output not available

### **ACCESSORIES - MATING CONNECTORS**

ACCESSORIES - Mating Connectors								
Part No.	Description	Code	Part No.	Description	Code			
557230	Mini Din Connector, Strain Relief	В		Recommended Mating Parts (AMP p/n: Socket Conn. 1-967325-1,	6			
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E		Consult AMP for Contacts, Wire Seal and Strain Relief options)				
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E	210730	AMP 12" Flying Leads Cord Set	6			
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Deutsch p/n: Housing	8			
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)				
			224153	Deutsch Cord Set 3' Long (18 AWG PVC Cable - Black 1, Red 2, Green 3, White, 4	8			
	Recommended Mating Parts (AMP p/n: Housing 282087-1;	6		Recommended Mating Parts (Delphi Packard MetriPack p/n: Body 12065268; Seal	9			
	Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)			12052893; Consult Delphi for Contacts)				
557701 210729	AMP Superseal Mate Kit	6	577	Packard Mate Kit	9			
	AMP 3.5' Cable Cord Set - Clear Pos 1, Black Pos 2, Red Pos 3	6	581	Packard Cord Set 3'Long	9			
			582	Packard Cord Set 6'Long	9			