

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 to10k 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

Heavy Duty OEM Industrial Pressure Transducer



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 | 10 x FS | |
| 7,500-9,000 (600) | | | |
| 10,000 (700) | | | |
| 15,000 (1,000) | 3.5056 | >60,000 PSI (4.000 Bar) | |
| 25,000 (1,600) | 2.50 x FS | (1,000 but) | |

PRESSURE CAPABILITY

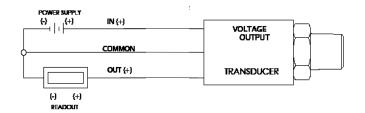
The data in this table is "times rate ranges" (xRR)

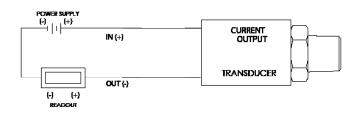
Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

| Performance Data | | Physical Des | cription |
|--|---|-------------------------|---|
| Accuracy ¹ | ±0.5% FS | Pressure Port | See Ordering Instructions |
| Thermal Effects ² | | 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 | | Vibration: 20 to 1000Hz @ approx. 40G Peak per MIL-STD-810E) |
| 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) ⁶ |
| 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) ^{3,4,5} | rating/Storage Temp °F(°C) ^{3,4,5} -40 to +221 (-40 to +125) | | 1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VDC, 0 to 10 VDC ⁷ |
| 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 | ta (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 maximum Vout1 output. This also accounts for worse-case customer output leads. | | Excitation | 8 to 30 VDC (24 VDC max. above 110°C applications) |
| | | Max. Loop Resistance | 1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VD 0 to 10 VDC? 2 Volts above FS to max 30 Volts @ 4.5 mA (6.5 Dual Output Version) 2mA 2ata (Current) 2-Wire 4 to 20mA 8 to 30 VDC (24 VDC max. above 110°C |

¹RSS of Non-Linearity, Hysteresis, and Non-Repeatability .

WIRING





²Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.

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

⁴Requires additional 2 mA of power.

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

⁶Reverse Wiring Protected.

 $^{^{7}\}mbox{Not available for pressure ranges lower than 100 PSI (7 BAR)}$





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 | | 0.38 (9.7) 1 0.71 (18) 1 0.75 (19) | 3 | 1.46 (37) | 1 2 3 | 1.50 (38) | 1 2 | 1.53 (39) | B | | 1.02 | 25.86) A 1.63 (41.38) | |
| | Code B | | Coc | le E | Cod | 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 _{out} 1 (pressure) | No Connect | V _{supply} | V_{supply} | V _{out} 1 (pressure) | No Connect | Ground | Return | V _{out} 1 (pressure) | No Connect | С | V _{supply} | V_{supply} | A |
| 2 | V_{supply} | V_{supply} | V _{out} 1 (pressure) | No Connect | Ground | Return | V _{supply} | V_{supply} | Ground | Return | А | Ground | Return | В |
| 3 | V _{out} 2 (temp) | No Connect | Ground | Return | V _{supply} | V _{supply} | V _{out} 2 (temp) | No Connect | V _{supply} | V_{supply} | В | V _{out} 1 (pressure) | No Connect | С |
| 4 | Ground | Return | V _{out} 2 (temp) | No Connect | _ | _ | V _{out} 1 (pressure) | No Connect | _ | _ | | _ | _ | |

PRESSURE FITTINGS

| SAE Dimensions in Inches | 0.28 (7) | 0.28.(7) | 0.28 (7) | 0.28 (7) 1 0.44 (11) | 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 |
| | 73 725 155 5 | 0.28(7) | 0.28(7) | 0.28 (7) | 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* | |

Heavy Duty OEM Industrial Pressure Transducer



ORDERING INFORMATION

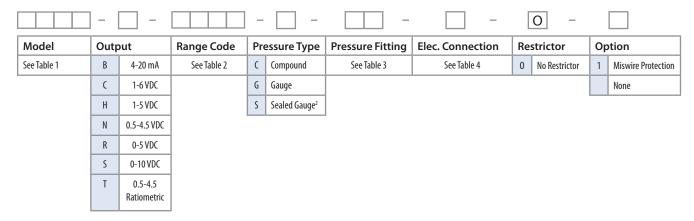


TABLE 1: MODEL SPEC

| CODE | DESCRIPTION | | | |
|-----------------------------|--|--|--|--|
| 3200 | Std. 3200 | | | |
| Voltage Units w/Temp. Ouput | | | | |
| 3201 ¹ | Temp. Output Range: -40°C to +125°C | | | |
| 3202 ¹ | Temp. Output Range: -0°C to +100°C | | | |
| 3203 ¹ | 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 ^{2,6} | 50 | 0004 ^{2,6} | 4 |
| 075P ² | 75 | 0005 ² | 5 |
| 100P ² | 100 | 0007 ² | 7 |
| 150P ² | 150 | 0010 ² | 10 |
| 230P ² | 230 | 0016 ² | 16 |
| 250P | 250 | 0020 ² | 20 |
| 300P ² | 300 | 0035 ² | 35 |
| 500P ² | 500 | 0070 ² | 70 |
| 10CP ² | 1000 | 0100 ² | 100 |
| 15CP ² | 1500 | 0160 | 160 |
| 23CP | 2300 | 0250 | 250 |
| 36CP | 3600 | 0400 | 400 |
| 60CP | 6000 | 0700 | 700 |
| 10KP | 10000 | 1000³ | 1000 |
| 15KP ³ | 15000 | 1800³ | 1800 |
| 25KP ³ | 25000 | 1600³ | 1600 |
| 32KP ^{3,5} | 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) | | |
| 2T ³ M12 x 1.5 (6g) (≥1000 bar, ≥15,000 PSI) | | | |
| OK | M14 x 1.5 Straight | | |
| 0E | Female 1/4-18NPT | | |

NOTES

¹Temperature 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).

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

 $^4\mbox{For use}$ with pull-up or pull-down resistors, contact factory.

 $^{\rm 5}$ 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.

⁷Temperature 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 | | | |
| 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 | | |