

# Model 3100/3200 High-Pressure Pressure Transducer



## Installation Guide



**setra**

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# Installation Guide

## Setra Systems Model 3100/3200 Pressure Transducer

### 1.0 GENERAL INFORMATION

Every Model 3100/3200 has been tested and calibrated before shipment.

Setra Systems 3100/3200 pressure transducers sense gauge pressure and convert this pressure difference to a proportional high level analog output. The following standard output and excitation versions are offered:

EXCITATION	OUTPUT
10 to 30 VDC	4 to 20 mA
5 VDC $\pm$ 10%	0.5 to 4.5 Ratiometric
2V above Full Scale to 30 VDC max @ 4.5mA	0 to 10 VDC 0.5 to 4.5 VDC 0 to 5 VDC 1 to 6 VDC 1 to 5 VDC 2mV/V (nominal)

### 2.0 MECHANICAL INSTALLATION

#### 2.1 Media Compatibility

Model 3100/3200 transducers are designed to be used with any gases or liquids compatible with 17-4 PH Stainless Steel.

#### 2.2 Environment

The operating temperature limits of the 3100/3200 are -40°F to +250°F (-40°C to +125°C). The compensated temperature range is -40°F to +250°F (-40°C to +125°C).

Ingress Protection: all transducers/transmitters have a minimum IP rating of IP65 in accordance with BS EN 60529.

#### 2.2 Electrical (See Diagram A, page 2 for electrical connections)

Cable Connectors: where client cable are used, the cable shield must be terminated by the client. The shield should not be connected to the transducer body.

Setra uses a 4-core color coded cable enclosed by a braided shield terminated within the transducer housing. Conformance of requirement with relation to the CE Mark, is only valid with Setra's approved cable.

Frequency Response: <1ms for Conditioned Outputs.

Maximum Current Draw: 2-wire Transmitter = 20mA, Transducer in voltage mode = 8mA, transducer in millivolt mode = 3.5mA

EMC Data: Meets the requirements of CE.

This product complies with EN61326-1 and EN61326-2-3 Electrical Equipment for Measurement, Control and Laboratory use – EMC Requirements for Minimum Requirements and Industrial Locations. Special caution should be taken to meet Standard EN61000-4-5. Surge Immunity if any of the following conditions apply to

the installation: The product is installed outside; all or any part of the cable is exposed to the outside; the cable is greater than 30 meters in length. In order to meet the Surge Immunity requirements, the following conditions must be followed during installation:

1. Shielded cable must be used, and the shield must be tied to earth ground (not power supply ground) on at least one end of the cable shield/drain wire. The shield must be maintained all the way from sensor to the power supply.
2. If unshielded cable is used, an earth grounded metal conduit fitting can be used to replace the shielded cable.
3. For a sensor with a metal body or enclosure, the body/enclosure must be grounded to earth. If a protective metal housing is used, the metal housing should be grounded to earth.
4. If a protective plastic housing is used, the housing must be able to withstand at least 2 KV from the housing to earth ground, without damaging the circuit.

### 2.3 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		150 10	230 16	300 20	500 35	1000 70	1500 100	2300 160	3600 250	6000 400	10000 700	15000 1000	25000 1600	32000 2200
Max. Over Pressure (<)		X3.0				X2.0						X1.4			
Min. Burst (>)		X40				X20			X10		>4000 bar				

#### 3200 Heavy Duty

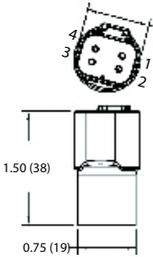
Rated Range	psi bar		150 10	230 16	300 20	500 35	1000 70	1500 100	2300 160	3600 250	6000 400	10000 700	15000 1000	25000 1600
Max. Over Pressure (<)		X3.0											X2.5	
Min. Burst (>)		X40				X20			X10		>4000 bar			

# Electrical Connections, Diagram A

(see page 7 for mating connectors)

## Deutsch DT04-4P

(Code 8)



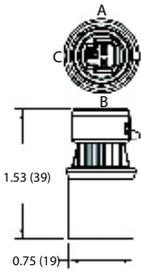
Pin #	Voltage Mode	Current Mode
1	Ground	Return
2	$V_{Supply}$	$V_{Supply}$
3	$V_{out2}$ (temp)	No Connect
4	$V_{out1}$ (pressure)	No Connect

### Miswire Protection Option

- Full miswire protection between all signal and power lines (any combination)
- Full short-circuit protection for  $V_{out1}$  to 0V or  $V_{out1}$  connected to supply, indefinitely.
- Temperature outputs not available.
- Ratiometric output not available.
- Supply Voltage must be 4V above the maximum  $V_{out1}$  output. This also accounts for worse-case customer output leads.

## Packard Metri Pack

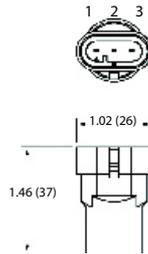
(Code 9)



Pin #	Voltage Mode	Current Mode
A	Ground	Return
B	$V_{Supply}$	$V_{Supply}$
C	$V_{out1}$ (pressure)	No Connect

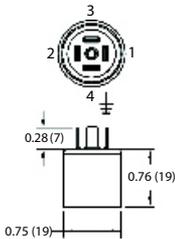
## Amp Superseal 1.5

(Code 6)



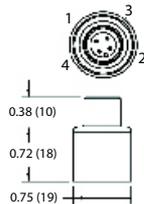
Pin #	Voltage Mode	Current Mode
1	$V_{out1}$ (pressure)	No Connect
2	Ground	Return
3	$V_{Supply}$	$V_{Supply}$

## DIN 9.4mm\* (Code B)



Pin #	Voltage Mode	Current Mode
1	$V_{out1}$ (pressure)	No Connect
2	$V_{Supply}$	$V_{Supply}$
3	$V_{out2}$ (temp)	No Connect
4	Ground	Return

## M12 x 1P (Code E)

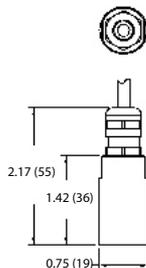


Pin #	Voltage Mode	Current Mode
1	$V_{Supply}$	$V_{Supply}$
2	$V_{out1}$ (pressure)	No Connect
3	Ground	Return
4	$V_{out2}$ (temp)	No Connect

\*mating connector not supplied

## Integral Cable/Flying Leads

(Code F)



Color	Voltage Mode	Current Mode
R	$V_{Supply}$	$V_{Supply}$
B	Ground	Return
G	$V_{out1}$ (pressure)	No Connect
W	$V_{out2}$ (temp)	No Connect

in. (mm)

## 2.4 Pressure Fittings (See Diagram B below)

NPTF (Dryseal & Standard Tapered Threads): “Dryseal” Pipe threads are designed to seal pressure tight joints without the need of compounds. To accomplish the seal, the root of both internal and external threads are truncated slightly more than the crests, i.e. roots have wider flats than crests. Therefore, metal-to-metal contact occurs when wrenching and crushing the sharper crests of the mating thread, thus creating the pressure tight joint and preventing spiral leakage. However, where functionally not objectionable, Setra recommends the use of an Anaerobic sealing compound to ensure an absolute pressure tight seal and minimize thread galling. Standard taper threads require the use of a sealing compound and are not interchangeable with “R” designed threads.

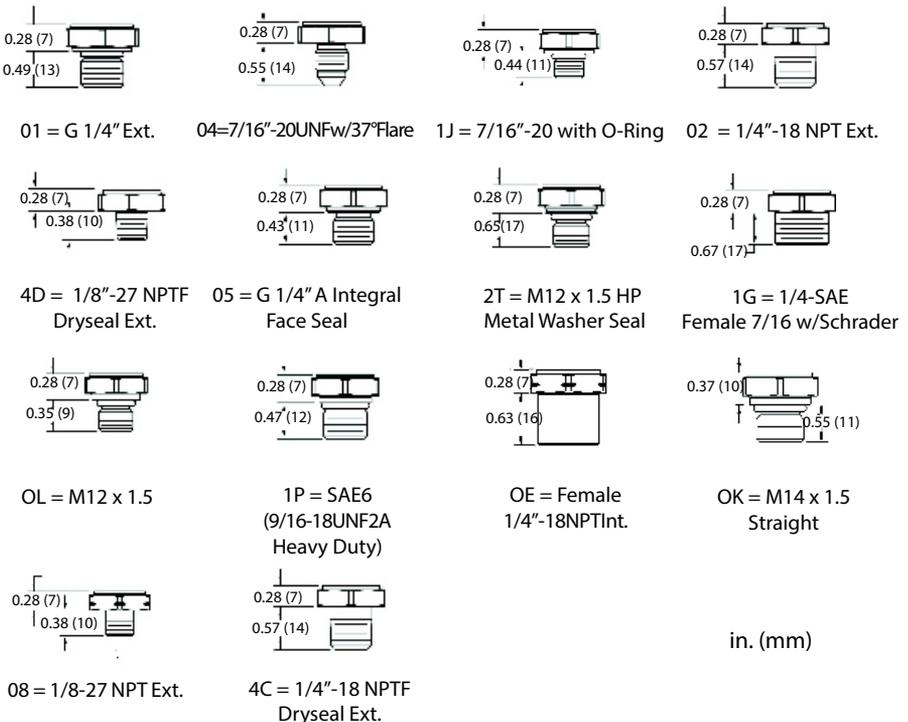
## 2.5 Installation

Voltage and current units can be installed by either wrench or deep socket. Sizes 22 A/F and 27 A/E. The tightening torque depends upon the material and the sealing mechanism. The tightening torque should not exceed 30Nm in any case.

Vibration: 50g Sinusoidal 20—200Hz

Operation: Having installed the transducers as instructed, they are ready for use. Before applying power, check that the correct polarity and excitation levels are being applied.

### Pressure Fittings Diagram 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.

### 3.0 MATING CONNECTORS (OPTIONAL)

Part NO.	Description	For use on Elect Code #
557230	Mini Din connector, Strain Relief	B
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
	Recommended Mating Parts (AMP p/n: Housing 282087-1; Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)	6
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 Post 3	6
	Recommended Mating Parts (AMP p/n: Socket Conn. 1-967325-1, Consult AMP for Contacts, Wire Seal and Strain Relief options)	6
557702	Din 72585 Twist Lock Mate Kit	7
	Recommended Mating Parts (Deutsch p/n: Housing Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)	8
	Recommended Mating Parts (Delphi Packard MetriPack p/n Body 12065286; Seal 12052893. Consult Delphi for Contacts)	9
577	Packard Mate Kit	9
581	Packard Cord Set 3' Long (18 AWG PVC Cable - White 1, Black 2, Red 3)	9
582	Packard Cord Set 6' Long (18 AWG PVC Cable - White 1, Black 2, Red 3)	9

## 4.0 RETURNING PRODUCTS FOR REPAIR

Please contact a Setra application engineer (800-257-3872) before returning unit for repair to review information relative to your application. Many times only minor field adjustments may be necessary. When returning a product to Setra, the material should be carefully packaged and shipped prepaid to:

Setra Systems, Inc.  
159 Swanson Road  
Boxborough, MA 01719-1304  
Attn: Repair Department

To assure prompt handling, please supply the following information and include it inside the package or returned material:

1. Name and phone number of person to contact.
2. Shipping and billing instructions.
3. Full description of the malfunction.
4. Identify any hazardous material used with product. Service order return form must accompany product. Form is available at [www.setra.com/tra/repairs/cal\\_rep.htm](http://www.setra.com/tra/repairs/cal_rep.htm). Form must be filled out completely. Returns that arrive without the form or proper paperwork will be rejected.

Notes: Please remove any pressure fittings and plumbing that you have installed and enclose any required mating electrical connectors and wiring diagrams.

Non-warranty repairs will not be made without customer approval and a purchase order to cover repair charges.

## 5.0 LIMITED WARRANTY AND LIMITATION OF LIABILITY

SETRA warrants its products to be free from defects in materials and workmanship, subject to the following terms and conditions: Without charge, SETRA will repair or replace products found to be defective in materials or workmanship within the warranty period; provided that:

- a) the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of instructions furnished by SETRA;
- b) the product has not been repaired or altered by anyone except SETRA or its authorized service agencies;
- c) the serial number or date code has not been removed, defaced, or otherwise changed; and
- d) examination discloses, in the judgment of SETRA, the defect in materials or workmanship developed under normal installation, use and service;
- e) SETRA is notified in advance of and the product is returned to SETRA transportation prepaid.

Unless otherwise specified in a manual or warranty card, or agreed to in writing and signed by a SETRA officer, SETRA pressure and acceleration products shall be warranted for one year from date of delivery.

The foregoing warranty is in lieu of all warranties, express, implied or statutory, including but not limited to, any implied warranty of merchantability for a particular purpose.

SETRA's liability for breach of warranty is limited to repair or replacement. In no instance shall SETRA be liable for incidental or consequential damages arising from a breach of warranty, or from the use or installation of its products. No representative or person is authorized to give any warranty other than as set out above or to assume for SETRA any other liability in connection with the sale of its products.

For all CE technical questions, contact Setra Systems, USA. EU customers may contact our EU representative Hengstler GmbH, Umlandstr 49, 78554 Aldingen, Germany (Tel: +49-7424-890; Fax: +49-7424-89500).

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