

Installation Guide

Setra Systems Model 201

Pressure Transducers

1.0 GENERAL INFORMATION

Every Model 201 has been tested and calibrated before shipment. Specific performance specifications are shown on page 3 of this Guide.

Setra Systems 201 pressure transducers sense gauge and differential pressure and convert this pressure difference to a proportional high level analog output. The Model 201 is a 4 to 20 MA output device.

2.0 MECHANICAL INSTALLATION

2.1 Media Compatibility

Model 201 transducers are designed to be used with any gases or liquids compatible with 316 Stainless Steel and Inconel® in process port. Reference port must be exposed to clean dry air or non-corrosive gas.

2.2 Environment

The operating temperature limits of the 201 are -40° to +175°F (-40 to +80°C). The compensated temperature range is -25 to +175°F (-33 to +80°C).

2.3 Pressure Fittings

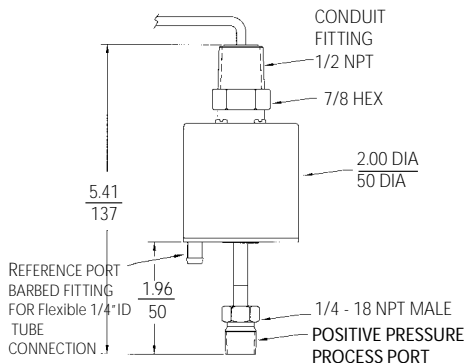
Typically, standard pipe fittings and procedures should be used. Excessive torquing of metal fittings may cause a slight zero shift. The use of plastic fittings typically results in no noticeable zero shift. Torquing does not appreciably affect linearity or sensitivity.

2.4 Venting for Gauge Pressure Measurements

All 201 units are vented to atmosphere through a Barbed reference port at the bottom of the unit.

2.5 Differential Pressure Measurements

Connect low pressure tube to reference port. *Note: Media into reference port must be clean dry air or non-corrosive gas.*



3.0 ELECTRICAL INSTALLATION

The Model 201 is available in the following electrical terminations:

Cable; Hirschmann Connector; 4-Pin Bayonet Connector, 3-Screw Terminal Block, and 1/2" male conduit with cable.

3.1 Model 201 Output

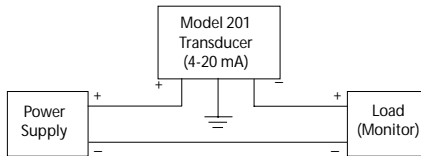
The Model 201 (current output) is a true 2-wire, 4-20 mA current output device that delivers rated current into any external load of 0-800 ohms.

CONNECTOR PIN WIRING

	CABLE	HIRSCHMANN	4-PIN BAYONET
CONNECTION	WIRE	PIN	PIN
+ EXCITATION	RED	#1	A
- EXCITATION	BLACK	#2	D & B
CASE GND	DRAIN	#4	SHELL
Minimum Supply Voltage = $12 + 0.02 \times \text{Loop Resistance}$ Maximum Supply Voltage = $30 + 0.004 \times \text{Loop Resistance}$			

3-SCREW TERMINAL BLOCK

Positive and negative connections are marked on the 201 terminal block. with "+" for positive and a "-" for negative. (The center terminal may be used for shielding.)



The 4-20 mA current output units are designed to have current flow in one direction only - **PLEASE OBSERVE POLARITY**. We suggest that the electrical cable shield be connected to the system's loop circuit ground to improve electrical noise rejection.

Note 1: Mating Hirschmann Connector #GDM3009J, Hirschmann #932214-100 with GDM3-16 Hirschmann Gasket #731531-002 are not provided by Setra Systems, unless ordered separately as Option 552. Mating cable-mount Bayonet connector P/N PT06A-8-45 (424) is not provided by Setra Systems.

4.0 Calibration

All Setra current pressure transducers are carefully calibrated to the specific input pressure range vs. output current at the factory so little or no field calibration is necessary. Model 201 transducers are factory calibrated using a 250 ohm load at 24 VDC. External zero and span adjustment capability is approximately ± 0.5 mA, individually. Zero and span adjustments are made by removing the pan head screws and turning the potentiometer screw inside. A jeweler's screwdriver or a .015" x 3/32" flathead screwdriver with a 3" shaft is easiest to use for making zero and span adjustments. It is important to replace the screws after adjustments are made to avoid allowing moisture to enter the transducer.

5.0 Model 201 Specifications

Performance Data

Accuracy RSS* (at constant temp)	$\pm 0.5\%$ FS
Non-Linearity, BFSL	$\pm 0.45\%$ FS
Hysteresis	0.025% FS
Non-Repeatability	0.025% FS
Thermal Effects**	
Compensated Range °F (°C)	-25 to +175 (-33 to +80)
Zero Shift %FS/100°F (50°C)	2.0 (1.8)
Span Shift %FS/100°F (50°C)	1.5 (1.4)

Warm-up Shift	0.1% FS/15 Minutes
Response Time	20 Milliseconds
Long Term Stability	0.5% FS/1 YR
Proof Pressure***	45 PSI
Burst Pressure	100 PSI

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

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

***Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications ($\pm 0.5\%$ FS zero shift).

Environmental Data

Temperature	
Operating* °F (°C)	-40 to +175 (-40 to +80)
Storage °F (°C)	-40 to +212 (-40 to +100)
Acceleration	10g Maximum
Shock**	50g Operating

*Operating temperature limits of the electronics only.

Pressure media temperature may be considerably higher or lower.

**Mil-Std 202F, Method 213B, Cond.C

Physical Description

Case	Stainless Steel
Pressure Fitting	1/4" VCR Male
	1/4" VCR Female
Vent	Through Porous Plug at Bottom of Case
Electrical Connection	Multiconductor Cable Hirschmann Connector Bayonet Connector 3 Screw Terminal Block
Zero/Span Adjustment	Top External Access
Weight	6 ounces

Electrical Data (Current)

Circuit	2-Wire
Output*	4 to 20 mA**
External Load	0 to 800 Ohms
Minimum supply voltage (VDC) =	$12 + 0.02 \times$ (Resistance of receiver plus line).
Maximum supply voltage (VDC) =	$30 + 0.004 \times$ (Resistance of receiver plus line).

*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

**Zero output factory set to within ± 0.08 mA.

***Span (Full Scale) output factory set to within ± 0.08 mA.

Pressure Media

Liquids or Gases Compatible with Stainless Steel and Inconel.

5.0 RETURNING PRODUCTS FOR REPAIR

Before returning the unit for repair, please contact a Setra application engineer (800-257-3872, 978-263-1400) to review information relative to your application. Many times only minor field adjustments may be necessary. When returning a product to Setra, the unit 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.
5. **Service Order Return Form Must Accompany Return.** This form can be downloaded from Setra's website at <http://www.setra.com/tra/repairs/pdf/webrepair.pdf>. *Note: Returns that arrive without this form completely filled out or without the 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.

Allow approximately 3 weeks after receipt at Setra for the repair and return of the unit. Non-warranty repairs will not be made without customer approval and a purchase order to cover repair charges.

Calibration Services

Setra maintains a complete calibration facility that is traceable to the National Institute of Standards & Technology (NIST). If you would like to recalibrate or recertify your Setra pressure transducers or transmitters, please call our Repair Department at 800-257-3872 (978-263-1400) for scheduling.

6.0 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 product code has not been removed, defaced, or otherwise changed; and
- d) examination discloses, in the judgement 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 a writing signed by a SETRA officer, SETRA pressure and acceleration products shall be warranted for one year from date of sale.

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, or if the goods cannot be repaired or replaced, to a refund of the purchase price. SETRA's liability for all other breaches is limited to a refund of the purchase price. 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.