

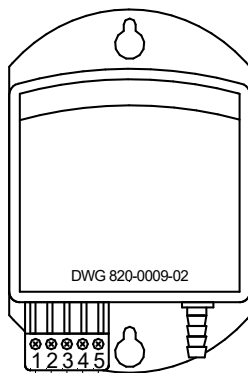
## 230-278 Barometric Pressure Sensor

The **230-278 Barometric Pressure Sensor** is the ideal solution for measuring barometric pressure for remote environmental applications. The 230-278 is designed using the SETRACERAM™ ceramic sensor, enabling it to meet stringent accuracy requirements over wide operating temperatures in remote applications. The small footprint and removable terminal block on the 230-278 makes installation fast and easy. The 230-278 is ideal for solar powered applications because of its low power consumption and sleep mode feature. Under normal operation, this feature minimizes current draw when readings are not being taken.



### Features

- Accuracy:  $\pm \sim 0.1\%$
- Long-term stability: 0.1 hPa (mb) per year
- Wide operating voltage 9.5 to 28 VDC
- Low power consumption



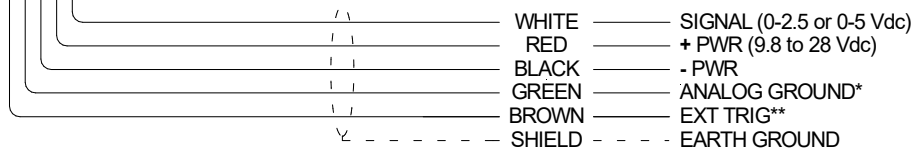
### BAROMETRIC PRESSURE

<b>230-278-5</b>	500 - 1100 hPa, 0-5V out
<b>230-278-5-2</b>	500 - 1100 hPa, 0-2.5V out
<b>230-278-6</b>	600 - 1100 hPa, 0-5V out
<b>230-278-6-2</b>	600 - 1100 hPa, 0-2.5V out
<b>230-278-8</b>	800 - 1100 hPa, 0-5V out
<b>230-278-8-2</b>	800 - 1100 hPa, 0-2.5V out

Please order cable by the foot.  
Consult NovaLynx for additional features and options.

#### Recommended Cable

PN 330-0524  
5C 24AWG, Shielded



- \* Connect **ANALOG GROUND** to **-PWR** for single-ended inputs
- \*\* Connect **EXT TRIG** to **+PWR** for continuous output

### Ordering Information

230-278-5	Barometric Pressure Sensor, 500-1100 mbar, 0-5V output
230-278-5-2	Barometric Pressure Sensor, 500-1100 mbar, 0-2.5V output
230-278-6	Barometric Pressure Sensor, 600-1100 mbar, 0-5V output
230-278-6-2	Barometric Pressure Sensor, 600-1100 mbar, 0-2.5V output
230-278-8	Barometric Pressure Sensor, 800-1100 mbar, 0-5V output
230-278-8-2	Barometric Pressure Sensor, 800-1100 mbar, 0-2.5V output
330-0524	Cable 5C 24AWG Shielded, per foot

Setra Systems, Inc.

159 Swanson road  
 Boxborough, MA 01719  
 Repair Dept. Fax #: 978-266-2158/Phone #: 978-266-2194

- ★ All lines must be filled out.
- ★ This form must accompany all returns. Returns that arrive with no information will be rejected.

CONTACT NAME: \_\_\_\_\_ EMAIL ADDRESS: \_\_\_\_\_  
 COMPANY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PHONE NUMBER: \_\_\_\_\_ FAX NUMBER: \_\_\_\_\_

PURCHASE ORDER WITH "NOT TO EXCEED" AMOUNT	CREDIT CARD #, EXP. DATE / CARDHOLDER NAME:
_____	_____
_____	_____

MODEL / PART # AND QTY: \_\_\_\_\_ SERIAL NUMBER/S: \_\_\_\_\_

- EXPEDITE, 1-3 days (\$50 FEE)   
  RUSH, 5-7 days   
  STD TIME, 2-3 weeks  
 CALIBRATION ONLY   
  CERT NEEDED   
  FAILURE ANALYSIS

REASON FOR RETURN/DESCRIPTION OF PROBLEM: \_\_\_\_\_

\_\_\_\_\_

NOTES/COMMENTS OR SPECIAL HANDLING \_\_\_\_\_

\_\_\_\_\_

Any product that has been used with Hazardous Materials must be 100% purged and should be accompanied by a MSDS sheet, bagged, sealed, and tagged accordingly. **Setra will not accept delivery of any product exposed to chemicals, radioactive agents, or biological process without evidence of decontamination or laboratory analysis, and proof the biological process is not harmful.**

Hazardous chemicals: Yes \_\_\_ No \_\_\_ (circle one)  
 List of Chemicals used: \_\_\_\_\_  
 Has unit been purged? Yes \_\_\_ No \_\_\_ Purged with what? \_\_\_\_\_  
 Has unit been flushed? Yes \_\_\_ No \_\_\_ Flushed with what? \_\_\_\_\_  
 Has unit been decontaminated: Yes \_\_\_ No \_\_\_ Explain Process: \_\_\_\_\_  
 All wetted surfaces have been removed: Yes \_\_\_ No \_\_\_

Billing Address:	Shipping Address
_____	_____
_____	_____

Method of Shipment: \_\_\_\_\_  
 (circle one) PPD: Yes Collect: Yes Please list account # \_\_\_\_\_



SS2123 Rev A05/16/04

# Installation Guide Model 278

## Barometric Pressure Transducer

### 1.0 GENERAL INFORMATION

Your Setra barometric pressure transducer has been carefully calibrated before shipment to you, and it should be handled with the same care given any precision instrument.

The Model 278 barometric pressure transducer senses absolute pressure and converts this pressure to a proportional high level analog output. Your pressure transducer has one of the following excitations and output.

<u>Excitation</u>	<u>Output</u>
9.5 to 28 VDC	0 to 2.5 VDC
9.5 to 28 VDC	0 to 5 VDC

Check the label on the unit to confirm the excitation and output.

### 2.0 EMC Certification

This product complies with EN61326 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: 1995 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.

### 3.0 MECHANICAL INSTALLATION

#### 3.1 Media Compatibility

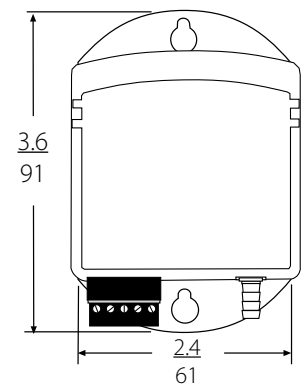
Model 278 transducers are designed to be used with air (up to 95% RH) or non-conducting gases. **Use with liquids or corrosive gases may damage the unit.**

#### 3.2 Environment

The operating temperature limits of the Model 278 are -40°C to +60°C (-40°F to +140°F).

#### 3.3 Pressure Fittings

The Model 278 is supplied with a 1/8 inch barbed fitting for the pressure connection and typically installed with push-on tubing.



Front View

## 4.0 ELECTRICAL INSTALLATION

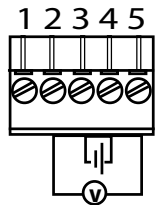
External access to the Model 278 electrical terminations is provided on the terminal strip at the bottom of the unit.

### 4.1 Voltage Output Units

The Model 278 barometric pressure transducer has five electrical terminals available for wiring. This unit can be wired as a 4 wire (Fig. 1) or 3 wire (Fig. 2) device. *Note: Four wire connection is recommended to avoid the voltage drop in the negative power line, which can affect the accuracy of the pressure measurement.*

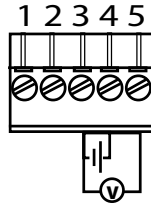
The terminals have the following designation:

**Figure 1**



**Four Wire Connection**

**Figure 2**



**Three Wire Connection**

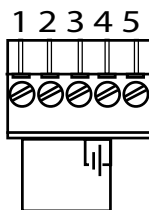
No.	Terminal	Function
1	EXT TRIG	External Trigger Signal 0 VDC Sleep Mode 3-28 VDC Operating Mode
2	AGND*	Analog Signal Ground
3	GND*	Supply Ground (Negative Power)
4	SUPPLY	Supply (Positive Power)
5	VOUT	Voltage Output

\*Both grounds (AGND and GND) are in the same electrical potential in the transducer.

### 4.2 Adjustment for Continuous Operation

The Model 278 has two operating modes: normal (operating mode) and shutdown (sleep mode). The unit is shipped in sleep mode (shutdown). To change to normal operation mode, an external trigger voltage is needed so that the transducer can wake up and measures pressure. For continuous operation, the "External Trigger", terminal 1, can also be wired with a jumper (external wire, not provided) to the supply, terminal 4, (see Figure 3).

**Figure 3**



## 5.0 CALIBRATION

The 278 transducer is factory calibrated and should require no field adjustment.

## 6.0 RETURNING PRODUCTS FOR REPAIR

Please contact a Setra application engineer (800-257-3872, 978-263-1400) 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, accompanied by the "Service/Repair/Calibration Order Return" form" on page 4 and shipped to :

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

*Note: Return order form is also available on Setra's web site @ [www.setra.com](http://www.setra.com).*

To assure prompt handling, please supply the following information and include it inside the package or returned material (Return Order Form provided on page 7):

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.

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.

## 7.0 WARRANTY AND LIMITATION OF LIABILITY

SETRA warrants its Model 278 Transducer products to the original consumer purchaser against defects for a period of two years from the date of sale by SETRA, as shown in its shipping documents. Without charge, SETRA will repair or replace products found to have manufacturing defects within the warranty period.

The serial number or date code must not have been removed, defaced or otherwise changed. SETRA must be notified in advance of any returns; any products returned to SETRA must be transportation prepaid. 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.