

PI700 & PI800 PROCESS DISPLAYS



**OWNERS MANUAL
500-185**



ELECTRO-NUMERICS, INC.

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SECTION 1 - INTRODUCTION

1.1 GENERAL DESCRIPTION

Electro-Numerics models PI700 and PI800 Process Indicators are "large digit" displays featuring high brightness, 2-1/4" tall LED digits, readable to 75 feet. These units are designed for rugged industrial applications and feature signal inputs compatible with many process transducers.

The enclosure is corrosion resistant, vacuum-formed black ABS plastic with stainless steel hardware and a gasket-sealed window and back panel. Rear terminal strip connection is provided for AC power and signal input. These displays are designed to be surface mounted but can also be through-panel mounted if required. Four rear-flange mounting holes are provided.

Available options include:

230Vac Power: Standard units operate from 115Vac, 47/400Hz. This option allows the display to be powered from a 230Vac line supply.

-S Special Scaling: Broad range, customer-adjustable scaling, settable from 500 to 19,999 counts full scale is standard. Scaling and decimal point selection to display in engineering units is accessible from the front without disassembling the display. With the -S, Special Scaling option installed, the customer specifies the scaling required and internal components are changed to accomplish this scaling. All Special Scaling requests must be submitted for approval by Electro-Numerics Engineering.

1.2 - MODEL PI700

This model is compatible with dc current loop signal inputs and may be connected to transducers having current outputs of 4/20mA or 0/20mA. The displayed reading may be adjusted from 500 to 19999 full scale.

1.3 - MODEL PI800

This model is compatible with dc voltage inputs. Model PI800 may be connected to transducers having voltage outputs between 5 and 10Vdc full scale and 0 to 1V zero offset. The displayed reading may be adjusted from 500 to 19999 full scale

SECTION 2 - INSTALLATION

2.1 UNPACKING AND INSPECTION

Remove the packing list and verify that all equipment has been received. If there are any questions about the shipment, please contact Electro-Numerics Customer Service at 800-854-8530 or 951-699-2437.

Upon receipt of shipment, inspect the container and equipment for any signs of physical damage. Take particular note of any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

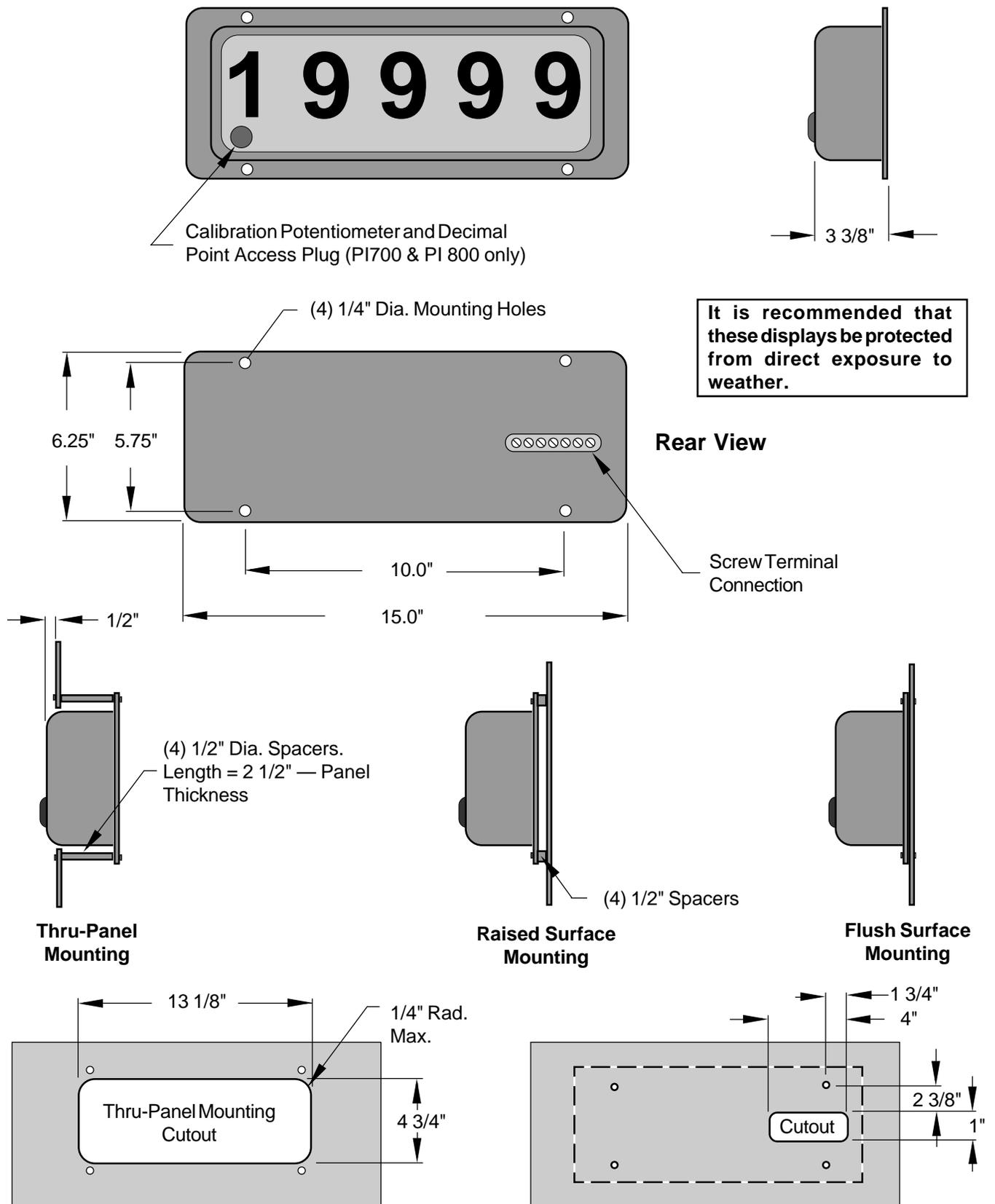
Note: The carrier will not honor any claims unless all shipping material is saved for their examination. After examining and removing the contents, save the packing materials and carton in the event re-shipment is necessary.

2.2 - MOUNTING (See Figure 1)

These displays are designed to be surface mounted on a vertical surface. Four 9/32" diameter mounting holes are provided for use with 1/4" bolts. See Figure 1 for mounting dimensions. Wiring connections are by terminal strip accessible at the rear of the display. A wiring access hole can be cut in the mounting surface or the display can be mounted on spacers to separate the display from the mounting panel. Maximum panel surface area is 6-1/4" high by 15" long.

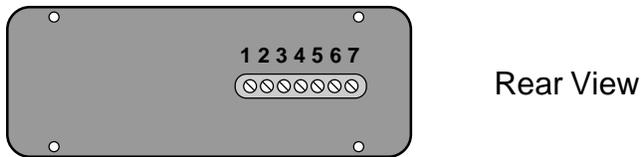
Care should be taken to mount the display away from sources of severe vibration and shock. It is recommended to shelter the display from direct exposure to sun and rain.

FIGURE 1
Mounting and Dimensions



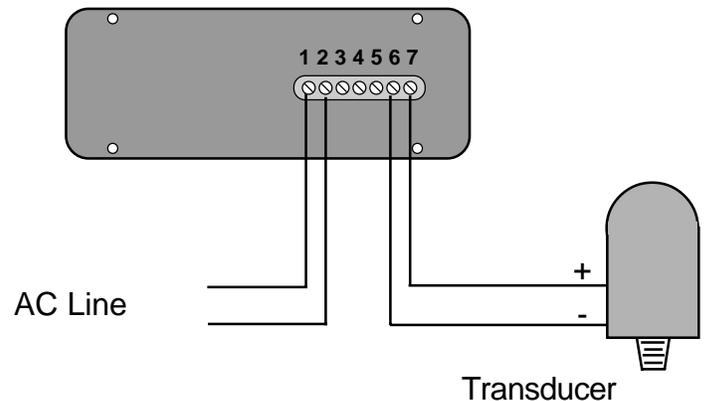
2.3 - ELECTRICAL CONNECTIONS AND WIRING

FIGURE 2
Rear Terminal Connection



- | | |
|-------------------|-----------------|
| 1 AC Power Line 1 | 5 N/C |
| 2 AC Power Line 2 | 6 Signal Ground |
| 3 N/C | 7 Signal (+) |
| 4 N/C | |

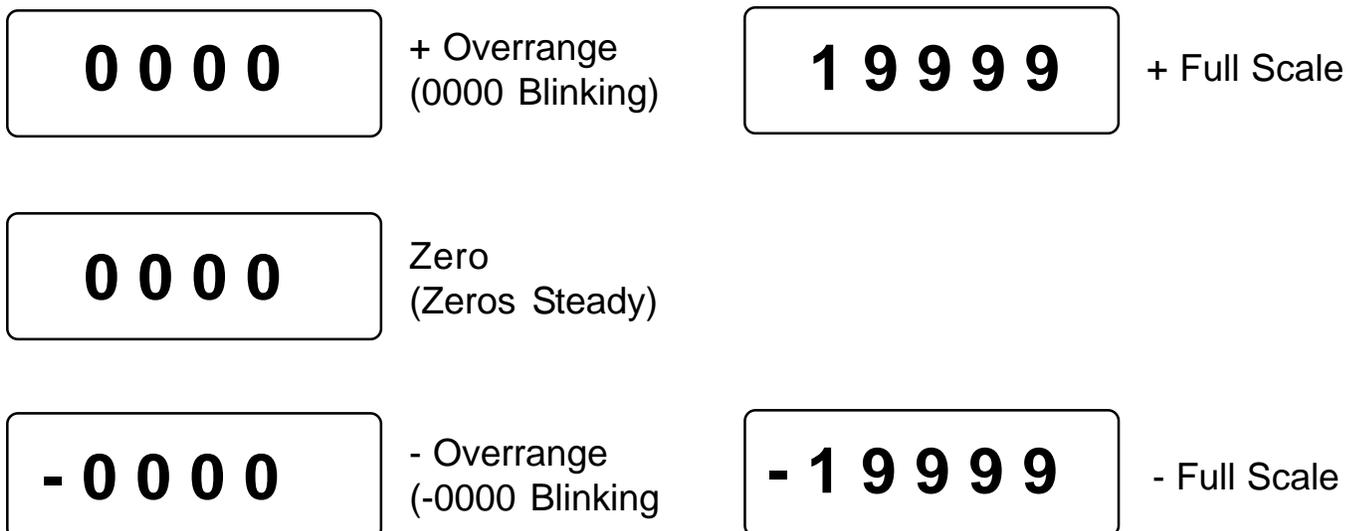
FIGURE 3
Typical Connection



2.4 - OBSERVATIONS AFTER POWER TURN-ON

With ac power applied and a signal input less than or equal to the calibrated full scale, the display will begin operation. With a positive signal input, the display should read between 0000 and 19,999. With a negative signal input (reversed lead connection) the display should read between 0000 and -19,999. Overrange is indicated by a flashing 0000 or -0000 display.

FIGURE 4
Display Indications



SECTION 3 - CALIBRATION

3.1 GENERAL CALIBRATION INFORMATION

Models PI700 and PI800 are high stability process indicators that are precalibrated at the factory. Calibration should not normally change, however it is recommended that calibration be checked a minimum of every 180 days for sensitive measurement applications. unless otherwise specified, models are calibrated as follows:

Model PI700: 4mA = 0000 and 20mA = 19999

Model PI800: 1V = 0000 and 5V = 19999

Calibration adjustments and decimal point selection are accessible from the front of the display by removing the plastic calibration plug (see Figure 5). Further disassembly of the display is not required. Four screwdriver adjustable pots are provided for zero and span adjustment.

Zero adjustment is by means of a coarse and fine pot located to the right of the calibration access hole. Full scale (span) adjustment is by means of a coarse and fine pot located to the left of the calibration access hole. Decimal point selection is by means of a four position rocker switch located above the calibration pots.

3.2 - EQUIPMENT NEEDED

- DC current source (PI700) capable of providing a 4/20mA constant current.
- DC voltage source (PI800) capable of providing a 10V (depending on desired scaling) constant voltage.
- Small straight-slot screwdriver

3.3 - MODEL PI700 CALIBRATION (See Figure 5 and Figure 6)

- 1) Connect the DC current source to the signal input terminals.
- 2) Connect AC power to the Line 1 and Line 2 input terminals.
- 3) Remove the plastic calibration access plug from the window.

Procedure:

Set the current source to 0mA output and adjust the display using the fine and coarse zero pots for a display of 0000.

Full Scale Adjustment 0/20mA:

Set the current source to 20mA. Adjust the display using the fine and coarse span pots for any desired full scale reading between 300 and 19999. Recheck the display with 0mA input to verify that the display reads 0000.

Full Scale Adjustment 4/20mA:

Set the current source to 16mA. Adjust the display using the fine and coarse span pots for any desired full scale reading between 300 and 19999. Input 4mA and adjust the fine and coarse zero pots for a display of 0000. Input 20mA and check that the display indicates the correct (desired) full scale reading. Readjust the fine span pot if necessary. Recheck the display with 4mA input to verify that the display reads 0000.

FIGURE 5

Calibration and decimal point access

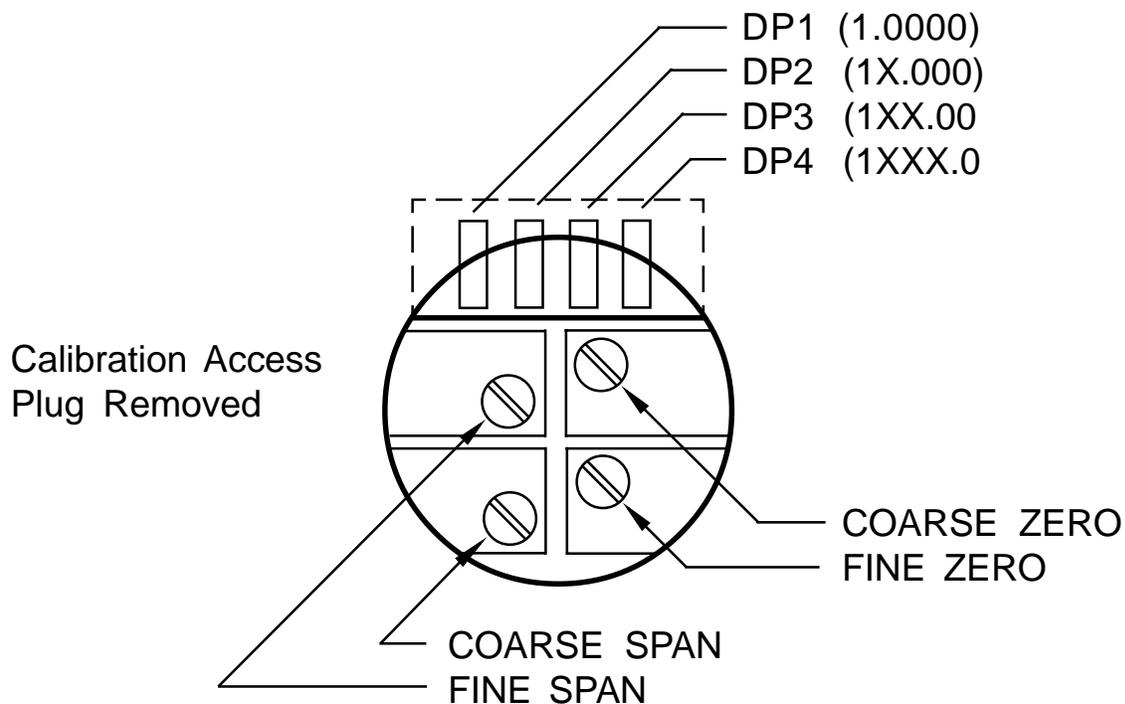
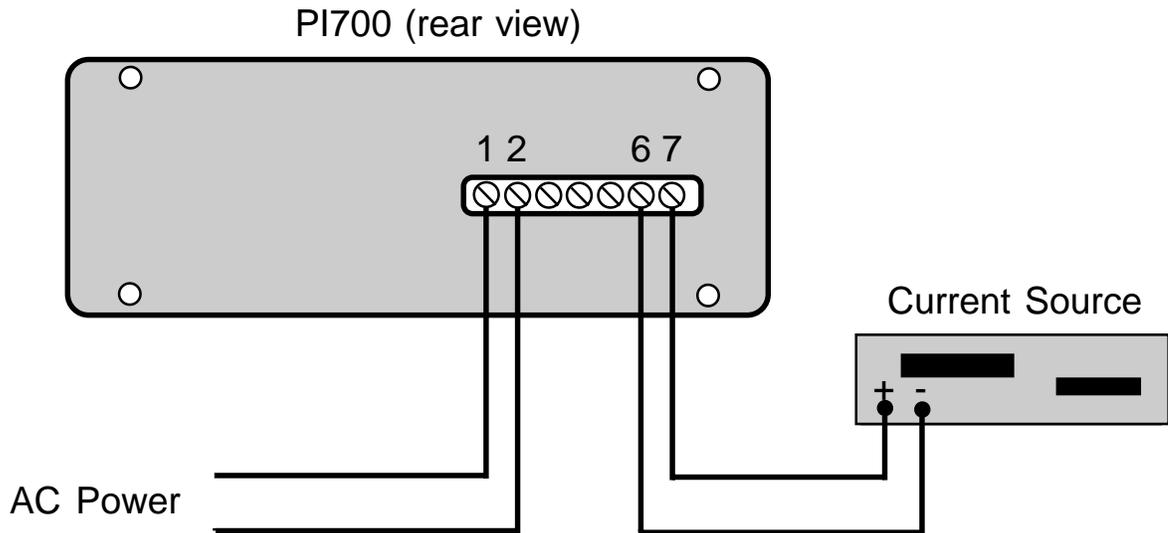


FIGURE 6
PI700 Calibration Equipment Connections



3.4 - MODEL PI800 CALIBRATION (See Figure 5 and Figure 7)

- 1) Connect the DC voltage source to the signal input terminals.
- 2) Connect AC power to the Line 1 and Line 2 input terminals.
- 3) Remove the plastic calibration access plug from the window.

Procedure:

Set the voltage source to zero volts output and adjust the display using the fine and coarse zero pots for a display of 0000.

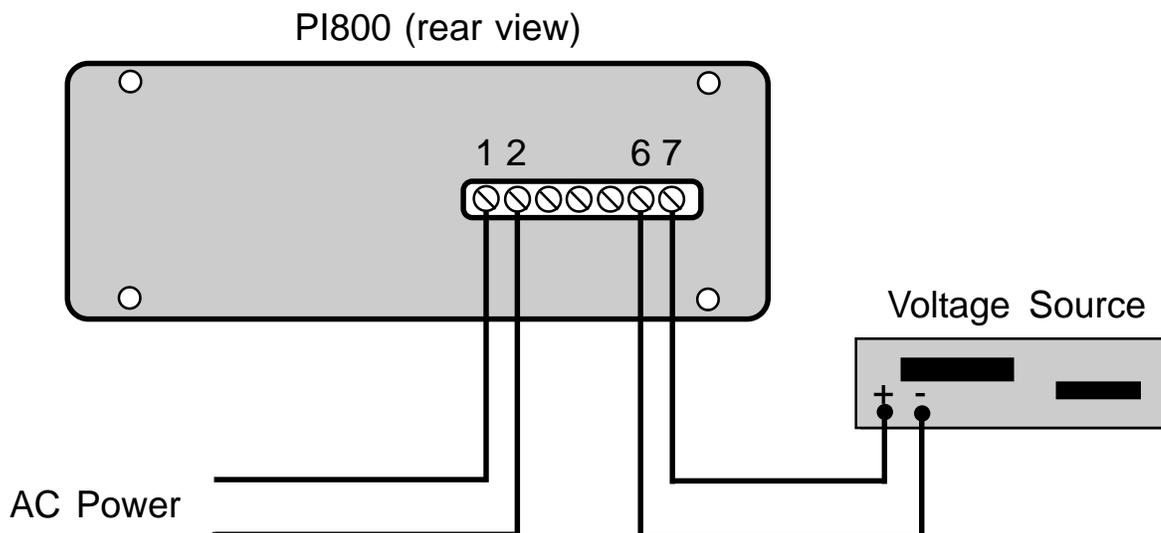
Full Scale Adjustment (ranges where 0V = 0000):

Set the voltage source to the full scale input voltage (5 to 10V). Adjust the display using the fine and coarse span pots for any desired full scale reading between 300 and 19999. Recheck the display with 0V input to verify that the display reads 0000.

Full Scale Adjustment (where an offset voltage = 0000):

Set the voltage source to the full scale input voltage level less the offset voltage
Example: 1V offset and 5V full scale, set the voltage source to $5V - 1V = 4V$.
Adjust the display using the fine and coarse span pots for any desired full scale reading between 300 and 19999. Input the offset voltage (1V) and adjust the fine and coarse zero pots for a reading of 0000. Input the full scale voltage (5V) and check that the display indicates the correct full scale reading. Readjust the fine span pot if necessary.

FIGURE 7
PI800 Calibration Equipment Connections



SECTION 4 - SPECIFICATIONS

4.1 SPECIFICATIONS

| | |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Display | -19999 to 19999 bipolar |
| Digits | 2-1/4" LED, seven-segment, red/orange |
| Read Rate | Approx. 3 readings per second |
| Accuracy (including linearity) | +/- 2 counts max. |
| Full Scale Signal Input: | |
| PI700 | 0/20mA or 4/20mA = 300 to 19999 adjustable |
| PI800 | 4.9 to 10.1V full scale = 300 to 19999 adjustable |
| Zero Signal Input: | |
| PI700 | 0 to 4mA = 0000 |
| PI800 | -0.5 to +1.1V = 0000 |
| <u>Note: For model PI800, these specifications will allow scalings of 0/5V, 1/5V, 0/10V, .5/5.5V, 1/10V etc.</u> | |
| Decimal Points | Activated by rocker switch (see Figure 5) |
| Temperature Range | Operating: -10°C to +60°C Storage: -40°C to +85°C |



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