



## Industrial Pressure Transducer P100 Series 3/4" Sanitary Flange Option



### FEATURES:

- Reliable bonded foil strain gage technology
- Gage, sealed gage or absolute pressure reference
- 0-50 psi thru 0-200 psi.
- 0-5 VDC, 0-10 VDC or 4-20 mA
- Rugged stainless steel construction
- Reverse polarity protection
- EMI / RFI filter protection
- Field-adjustable zero
- Sanitary flange 3/4", built to 3A sanitary standards
- CE mark (amplified voltage units)

### DESCRIPTION:

#### Applications

The Trans Metrics' P100 series pressure transducer with 3/4" sanitary flange option is specifically made for the biotech market. In addition, the P100 series is designed for applications that require a high output signal combined with high reliability, durability, and accuracy.

Applications can be static or dynamic.

#### Design

P100 models incorporate three major design elements that allow them to measure pressure accurately and reliably: bonded foil strain gages configured in a Wheatstone bridge (for temperature stability), precision integral electronics (for bridge excitation and signal amplification), and stainless steel construction (for durability and corrosion resistance).

#### Pressure References

P100 models are available in three pressure references: *gage* (referenced to local atmospheric pressure), *sealed gage* (referenced to standard atmospheric pressure at sea level) and *absolute* (referenced to a vacuum).

All P100's, regardless of reference type, can have a vacuum applied to the pressure port resulting in a negative (-) output.

#### Accuracy Classes

Three accuracy classes are offered (see 'SPECIFICATION' section for detailed information on models P115, P125 and P150). Other specifications are available upon request.

#### Calibration and Compensation

Trans Metrics Inc. individually calibrates and temperature compensates each pressure transducer. Transducers are calibrated against standards traceable to the National Institute of

Standards and Technology. A certificate of calibration is supplied with each unit.

#### Options/Modifications\*

Numerous options and modifications are available and are designated by an option number (xxx) after the model number. Selected options appear in the 'OPTION / PRICING' Guide. If a desired option is not listed, or if multiple options are required, please call the factory to discuss your requirements.

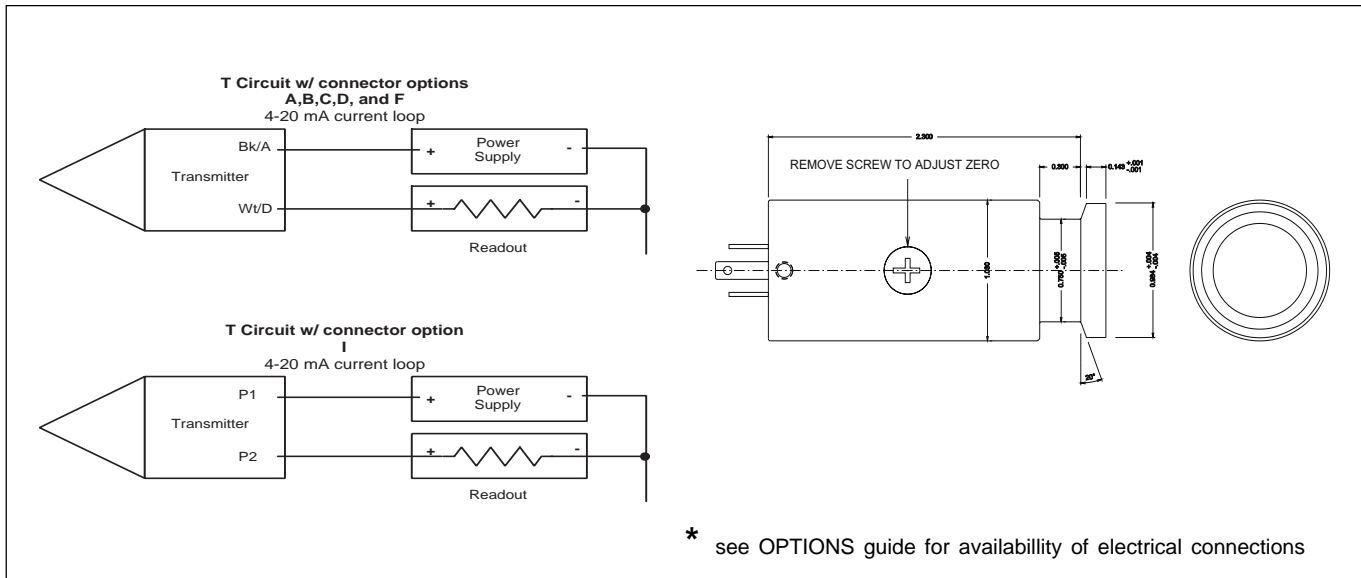
#### Ordering

Specify series & accuracy (P115, P125, P150 - see back), circuit type (B, C, D, L, T), pressure connection (S), electrical connection (A, B, etc...), options (xxx), pressure range (xxxxx psi - can be units other than psi) pressure reference (g - gage, s - sealed gage, a - absolute).

Example: P115CSA552 100 psia

See the P100 'OPTION / PRICING' Guide for detailed information.

\* Some options or combination of options may alter transducer performance and/or mechanical characteristics.

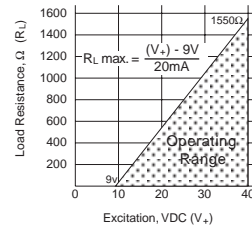


**SPECIFICATIONS:**

|  |   |
|--|---|
| <b>Model:</b>  | P115 (Not available below 100 psi)<br>P125<br>P150  |
| <b>Pressure Range:</b>   | 0-50 psi thru 0-200 psi   |
| <b>Output Range:</b>   | 0-5 VDC $\pm 0.5\%$ * (B,C, L)<br>1-5 VDC $\pm 0.5\%$ * (D)<br>4-20 mA $\pm 0.5\%$ * (T)<br>(* all outputs $\pm 2.0\%$ for P150)  |
| <b>Zero Balance:</b><br>(Field-Adjustable $\pm 5\%$ typical)                                 | $\pm 0.5\%$ (P115)<br>$\pm 1.0\%$ (P125, P150)  |
| <b>Static Error Band:</b><br>(BSL - Nonlinearity, Hysteresis, and Nonrepeatability combined) | $\pm 0.15\%$ FSO (P115)<br>$\pm 0.25\%$ FSO (P125)<br>$\pm 0.50\%$ FSO (P150)   |
| <b>Nonrepeatability:</b>   | $\pm 0.1\%$ FSO (P115, P125)<br>$\pm 0.2\%$ FSO (P150)  |
| <b>Thermal Zero Shift:</b>   | $\pm 0.005\%$ FSO/ $^{\circ}$ F (P115)<br>$\pm 0.009\%$ FSO/ $^{\circ}$ C<br>$\pm 0.01\%$ FSO/ $^{\circ}$ F (P125)<br>$\pm 0.018\%$ FSO/ $^{\circ}$ C<br>$\pm 0.02\%$ FSO/ $^{\circ}$ F (P150)<br>$\pm 0.036\%$ FSO/ $^{\circ}$ C |
| <b>Thermal Sensitivity Shift:</b>  | $\pm 0.005\%$ FSO/ $^{\circ}$ F (P115)<br>$\pm 0.009\%$ FSO/ $^{\circ}$ C<br>$\pm 0.01\%$ FSO/ $^{\circ}$ F (P125)<br>$\pm 0.018\%$ FSO/ $^{\circ}$ C<br>$\pm 0.02\%$ FSO/ $^{\circ}$ F (P150)<br>$\pm 0.036\%$ FSO/ $^{\circ}$ C |
| <b>Operating Temperature Range:</b>  | -40 $^{\circ}$ F to 185 $^{\circ}$ F<br>-40 $^{\circ}$ C to 85 $^{\circ}$ C   |
| <b>Compensated Temperature Range:</b>  | 0 $^{\circ}$ F to 160 $^{\circ}$ F<br>-20 $^{\circ}$ C to 70 $^{\circ}$ C   |
| <b>Max. Safe Exposure Temp.:</b>   | +250 $^{\circ}$ F, +125 $^{\circ}$ C  |
| <b>EMI Filters:</b> (Min. Insertion Loss)  | 10 MHz 5dB<br>10 GHz 70dB   |

**Electrical Protection:** Reverse Polarity on Input  
Overvoltage Protection  
Clamping Diodes on Signal

**Excitation:**



9 to 28 VDC (B, C & D)  
4 to 28 VDC (L)  
9 to 40 VDC at the transmitter

**Important Note: T type circuit 4-20 mA has an over-scale limit of 34mA**

**Current Consumption:** (Typical)

28 mA (B)  
13 mA (C & D)  
2 mA (L)  
4-20 mA (T)

**Resolution:**

Continuous

**Natural Frequency:**

Approximately 6 KHz for 50 psi range rising to approx. 230 KHz for 10,000 psi range

**Rise Time:** (10-90%)

Less than 1 ms typical

**Proof Pressure:**

1.5 times rated pressure.

**Burst Pressure:**

4 times rated pressure.  
(Transducer only, not clamps.)

**Material:** sensor / housing

15-5 PH S.S. / 300 series S.S.

**Weight:**

Approximately 3.5 oz. or 100 g

**Identification:**

Model, range, serial #, connections, manufacturer & country of origin are inscribed on the case.

**Special Statement:**

See application note, page 4

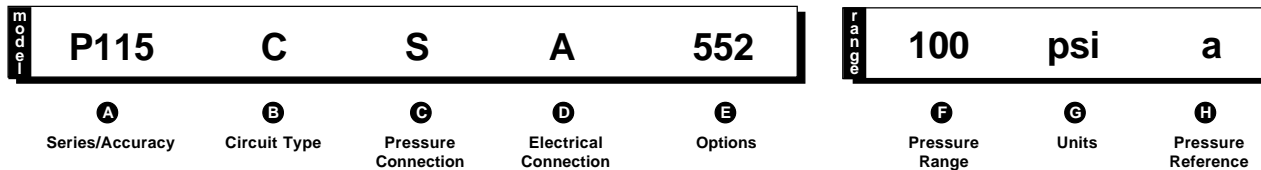
Specifications are subject to change without notice

Trans Metrics' P100 series model numbers are constructed as a series of numbers and letters that identify the accuracy, electrical circuit, pressure connection, electrical connection, and any options or features which may be unique to a particular pressure transducer.

The model number below features **A** a P100 series pressure transducer with P115 specifications, **B** 0-5 VDC output, **C** special pressure option - combine with common options/ modifications to select pressure fitting **D** a PTIH-10-6P electrical connection. Any other options selected **E** would be assigned a three (3) digit number which would be added to the end of the model number. For this example, 552 is a 3/4" sanitary flange.

Pressure selections should be specified including the **F** pressure range, **G** units and **H** pressure reference.

example:



The chart below will assist you in selecting a transducer configuration and obtaining pricing information.

| Model Selections                        |      |   |     |
|---|------|---|-----|
| <b>A Series / Accuracy</b>              |      |   |     |
|   | P115 | P100 Series with ±0.15% SEB BSL*  | 330 |
|   | P125 | P100 Series with ±0.25% SEB BSL   | 275 |
|   | P150 | P100 Series with ±0.50% SEB BSL   | 260 |
| <b>B Circuit Type</b>                   |      |   |     |
|   | A    | 0-5 VDC Signal Output (Differential, Exc = 15-32)                       | N/C |
|   | B    | 0-5 VDC Signal Output (Differential, Exc = 9-28)                        | N/C |
|   | C    | 0-5 VDC Signal Output (Single Ended)                                    | N/C |
|   | D    | 1-5 VDC Signal Output   | N/C |
|   | L    | 0-5 VDC Signal Output (Low Current)                                     | N/C |
|   | M    | 1-2 mV/V Nominal  | N/C |
|   | T    | 4-20 mA Signal Output   | N/C |
| <b>C Pressure Connection</b>            |      |   |     |
|   | S    | Combine with common options/modifications to selected pressure fitting. |     |
| <b>D Electrical Connection</b>          |      |   |     |
|   | A    | PTIH-10-6P (mate #80002, sold separately \$29)                          | N/C |
|   | B    | PCIH-10-6P (mate #80001, sold separately \$48)                          | 58  |
|   | C    | Cable 1 meter 28 AWG PVC  | N/C |
|   | D    | Cable 1 meter 24 AWG Teflon®  | N/C |
|   | F    | Flying Leads 1 meter 24 AWG Teflon®                                     | N/C |
|   | I    | Mini-Hirschmann (DIN 43650-C, mate included)                            | N/C |
| <b>E Common Options / Modifications</b> |      |   |     |
|   | 004  | Shunt Calibration (N/A on T Circuit)                                    | 20  |
|   | 005  | Shunt Calibration (80% ±1%) (N/A on T Circuit)                          | 40  |
|   | 017  | 0 - 10 VDC FSO (C Circuit)  | 20  |
|   | 066  | 0-10 VDC FSO + 80 % shunt   | 60  |
|   | 178  | 1 - 6 VDC FSO (D circuit)   | 20  |

\* P115 not available below 100 psi  
Continued >>

| Model Selections (continued)            |     |                                  |     |
|---|-----|----------------------------------|-----|
| <b>E Common Options / Modifications</b> |     |                                  |     |
|   | 552 | 3/4" Sanitary Flange             | 125 |
|   | ### | Additional cable lengths / types |     |
|   | ### | Special wiring (specify)         |     |

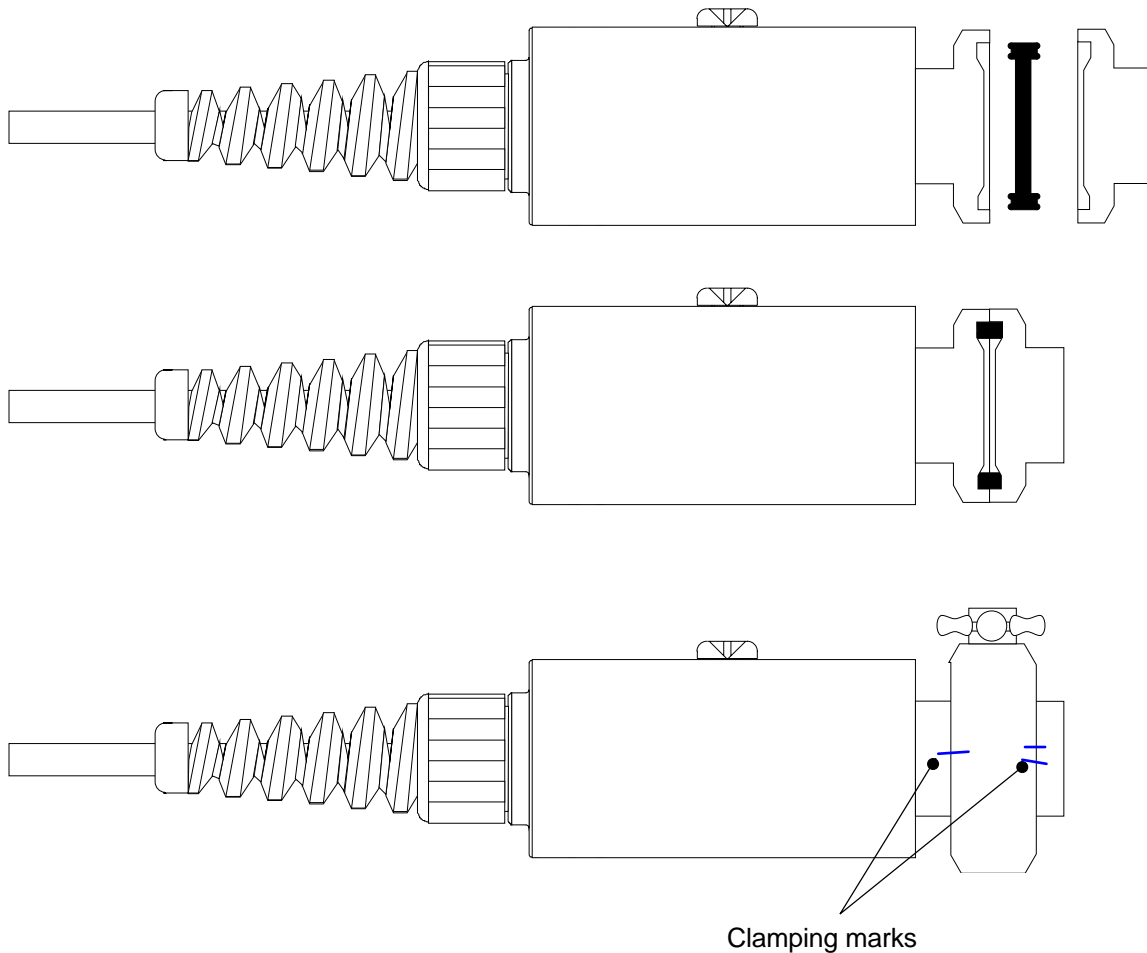
| Pressure Selections                       |             |   |  |
|---|-------------|---|--|
| <b>F Pressure Range*</b>                  |             |   |  |
|   | min.        | 0 - 50 psi (0 - 3.5 bar)                                |  |
|   | < >         | we accommodate any range in between                     |  |
|   | max.        | 0 - 200 psi (0 - 14 bar)                                |  |
| compound and vacuum available             |             |   |  |
| <b>G Units [Available Pressure Range]</b> |             |   |  |
|   | psi         | 50 psi thru 200 psi                                     |  |
|   | bar         | 3.5 bar thru 14 bar                                     |  |
|   | kg/cm²      | 3.5 kg/cm² thru 14 kg/cm²                               |  |
|   | KPa         | 350 KPa thru 1400 KPa                                   |  |
|   | in Hg       | 100 in Hg thru 400 in Hg                                |  |
|   | other       | consult factory   |  |
| <b>H Pressure Reference</b>               |             |   |  |
|   | gage        | Reference to local atmospheric pressure                 |  |
|   | absolute ** | Reference to a vacuum                                   |  |
|   | sealed **   | Reference to standard atmospheric pressure at sea level |  |

SEB: Static Error Band  
BSL: Best Straight Line

If you have need of an option not listed above, please consult factory for availability.

## Clamping procedures for the 3/4" sanitary fittings

1. Only tighten clamp finger tight until you feel the o-ring compress. As soon as this happens you will have the two halves with a slight metal to metal contact. **DO NOT TIGHTEN CLAMP ANY FURTHER.**
2. Note the zero shift after clamping.
3. Loosen and turn unit in clamp 90° and retighten, note zero shift.
4. Continue step 3 until you find the point with the least zero shift.
5. Loosen, rotate, and retighten within that 90° section to find the spot with the least amount of zero shift.
6. Mark the transducer the fitting and the clamp. These marks will be aligned every time you release and reclamp the transducer to the fitting.



If you have need of an option not listed above, please consult factory for availability.