



P200 Series

P200 Series

INDUSTRIAL PRESSURE TRANSDUCER

FEATURES

- **Reliable bonded foil strain gage technology**
- **Gage, sealed gage, absolute, vacuum or compound pressure**
- **Wide variety of pressure connection options**
- **Rugged stainless steel construction**
- **0-10 thru 0-50 psi Pressure Ranges**
- **3 or 4-wire amplified voltage output, 4-20 mA current loop, 1 mV/V nominal**

SPECIAL OPTIONS AVAILABLE:

- Low Power Operation
- Pharmaceutical / Biotechnical Options



Uncontrolled if printed



P200 Series

P200 Series

OVERVIEW

The P200 series pressure transducer is designed for a wide variety of industrial type applications requiring a high output signal combined with high reliability, durability and accuracy. They are designed to withstand temperature, shock and vibration.

FEATURES

- 3 or 4 wire amplified voltage output, 4-20 mA current loop, 1 mV/V optional
- Reverse polarity protection
- EMI/RFI filter protection
- Field adjustable span and zero



P200 Industrial
0-15 thru 0-50 psig



P200 Low Power
0-15 thru 0-50 psig



P200 Pharmaceutical/
Biotechnical
0-15 up to 0-50 psig
(pressure range varies with fitting)

APPLICATIONS

- Vehicle Test Stands
- Stamping Presses
- Laboratory Testing
- Analyzers
- Aircraft Engine Test Stands
- Fluid Measurement in Pharmaceutical/Biotechnical facilities



TECHNOLOGY

Pressure transducers convert applied pressure to an electric signal through various technologies. The P200 Series features bonded foil strain gage technology, considered one of the most durable and abuse-resistant technologies available today. The bonded foil strain gage transducer measures pressure when a fluid is introduced into a simple low volume chamber (port), where it acts against the diaphragm. Proportional to the applied pressure, the resistance change is conditioned by integrated circuit devices to produce the transducer's output.

In addition to bonded foil strain gage technology, the P200 incorporates a beam/diaphragm to enhance low-pressure range operation. Ranges from 15 psi through 50 psi may be ordered.



P200 Series

P200 Series

SPECIFICATIONS

MODEL:	P215 P225 P250
PRESSURE RANGE:	0-15 psi thru 0-50 psi 0-1.03 bar thru 0-3.5 bar
OUTPUT RANGE:	0-5 VDC * $\pm 0.5\%$ (Type A, B, C, L) 1 mV/V nominal (Type M) 1-5 VDC * $\pm 0.5\%$ (Type D) 4-20 mA (Type T) (P215 $\pm 0.5\%$, P225 $\pm 1.0\%$)* * all outputs $\pm 2.0\%$ for P250
ZERO BALANCE: (Field-Adjustable $\pm 5\%$ typical)	$\pm 0.5\%$ (P215) $\pm 1.0\%$ (P225, P250)
STATIC ERROR BAND: (BSL - Nonlinearity, Hysteresis, and Nonrepeatability combined) BSL: Best Straight Line	$\pm 0.15\%$ FSO (P215) $\pm 0.25\%$ FSO (P225) $\pm 0.50\%$ FSO (P250)
NONREPEATABILITY:	$\pm 0.1\%$ FSO (P215, P225) $\pm 0.2\%$ FSO (P250)
THERMAL ZERO SHIFT:	$\pm 0.005\%$ FSO/ $^{\circ}$ F (P215) $\pm 0.009\%$ FSO/ $^{\circ}$ C $\pm 0.01\%$ FSO/ $^{\circ}$ F (P225) $\pm 0.018\%$ FSO/ $^{\circ}$ C $\pm 0.02\%$ FSO/ $^{\circ}$ F (P250) $\pm 0.036\%$ FSO/ $^{\circ}$ C
THERMAL SENSITIVITY SHIFT:	$\pm 0.005\%$ / $^{\circ}$ F (P215) $\pm 0.009\%$ / $^{\circ}$ C $\pm 0.01\%$ / $^{\circ}$ F (P225) $\pm 0.018\%$ / $^{\circ}$ C $\pm 0.02\%$ / $^{\circ}$ F (P250) $\pm 0.036\%$ / $^{\circ}$ C
OPERATING TEMPERATURE RANGE:	-40 $^{\circ}$ F to 185 $^{\circ}$ F -40 $^{\circ}$ C to 85 $^{\circ}$ C

COMPENSATED

0°F to 160°F

TEMPERATURE RANGE:

-20°C to 70°C

MAX. SAFE EXPOSURE

+250°F, +125°C

TEMP.:

EMI FILTERS:

(Min. Insertion Loss)

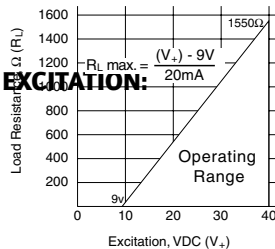
10 MHz 5dB

1 GHz 40dB

ELECTRICAL PROTECTION:

Reverse Polarity on Input
 Overvoltage Protection
 Clamping Diodes on Signal

EXCITATION:



15 to 32 VDC (Type A)
 9 to 28 VDC (Type B, C, D)
 4 to 28 VDC (Type L)
 5 to 18 VDC (Type M)
 9 to 40 VDC at the transmitter see graph (Type T)

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

CURRENT CONSUMPTION:

(Typical)
 4-20 mA (Type T)

13 mA (Type A, B, C, D)

1 mA (Type L)

RESOLUTION:

Continuous

NATURAL FREQUENCY:

Approximately 200 Hz for 10 psi range rising to approx. 500 Hz for 50 psi range

RISE TIME: (10-90%):

Less than 5 ms typical

PROOF PRESSURE:

1.5 times rated pressure

BURST PRESSURE:

3 times rated pressure

MATERIAL: sensor / housing

17.4 or 316 S.S. and Inconel / 300 series S.S.

WEIGHT:

Approximately 6 oz. or 169 g

IDENTIFICATION:

Model, range, serial #, connections, manufacturer and country of origin are identified on the case

MODEL CHART

1 Model	
P215	P200 Series with $\pm 0.15\%$ SEB BSL
P225	P200 Series with $\pm 0.25\%$ SEB BSL
P250	P200 Series with $\pm 0.50\%$ SEB BSL
2 Circuit	
A	0-5 VDC Signal Output (Differential, Exc = 15-32)
B	0-5 VDC Signal Output (Differential, Exc = 9-28)
C	0-5 VDC Signal Output (Single Ended)
D	1-5 VDC Signal Output
L	0-5 VDC Signal Output
M	1-2 mV/V Nominal Signal Output
T	4-20 mA Signal Output
3 Pressure Connection	
B	7/16-20 37° male (for 1/4" tube)
C	7/16-20 fem. MS33649-4 (for 1/4" tube)
G	7/16-20 SAE female (for 1/4" tube)
H	1/4-18 NPT female
I	1/4-18 NPT male
J	1/8-27 NPT male
K	1/2-20 UNF male
P	1/2-18 NPT male
S	Combine with common options/modifications to select pressure fitting
T	1/4-28 Flow-Thru
V	14" VCR™ fitting (female)
W	14" VCR™ fitting (male)
4 Electrical Connection	
A	PTIH-10-6P (mate #80002, sold separately)
B	PCIH-10-6P (mate #80001, sold separately)
C	Cable 1 meter 28 AWG PVC
D	Cable 1 meter 24 AWG Teflon®
F	Flying Leads 1 meter 24 AWG Teflon®
I	Mini-Hirschmann DIN 43650-C included

5 Common Options / Modifications	
004	Shunt Calibration
005	Shunt Calibration (80% + 1%)
009	2.5 - 12.5 VDC FSO (D circuit)
017	0-10 VDC FSO (C Circuit)
066	0-10 VDC FSO +80% shunt
071	Integral snubber (male threads only)
143	1/4" Tube stub, 4" length
178	1-6 VDC FSO (D Circuit)
539	1/4" Tube stub, 1" length
583	BVCO 1/4" Female
584	BVCO 1/4" Male
670	1/4" Tube stub, 2" length
###	Additional cable lengths/types
###	Special wiring (specify)
6 Pressure Range	
min.	0 - 10 psi (0 - 0.7 bar)
< >	we accommodate any range in between
max.	0 - 50 psi (0 - 3.5 bar)
compound and vacuum available	
7 Units	
psi	10 psi thru 50 psi
bar	0.7 bar thru 3.5 bar
kg/cm ²	0.7 kg/cm thru 3.5 kg/cm ²
KPa	70 KPa thru 350 KPa
"Hg	20" Hg thru 100" Hg
other	consult factory
8 Pressure Reference	
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

Teflon® is a registered trademark of E.I. DuPont
 VCR™ Swagelok Company

HOW TO ORDER

Trans Metrics' P200 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 P200 series pressure transducer with P215 specifications, **B** 0-5 VDC output, **C** 7/16-20 female thread and **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.

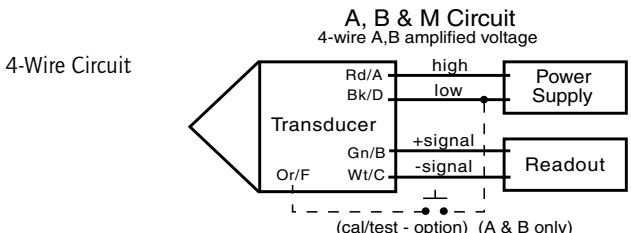
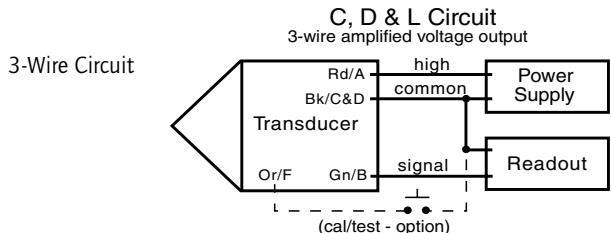
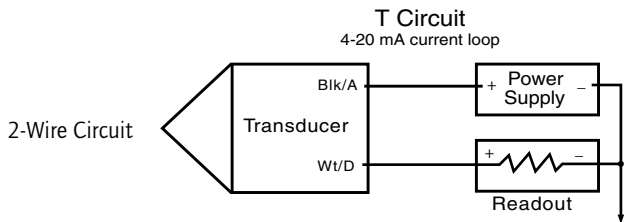
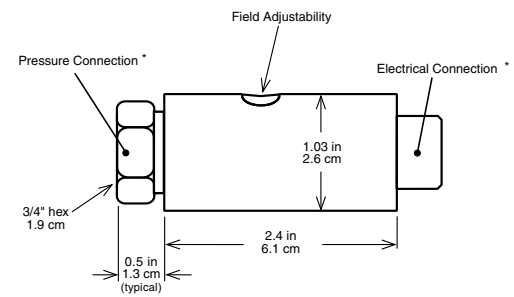
Pressure selections should be specified including the **F** pressure range **G** units and **H** pressure reference.

Example:

P215	C	G	A	178	10	psi	g
A	B	C	D	E	F	G	H
Series/ Accuracy	Circuit Type	Pressure Connection	Electrical Connection	Options	Pressure Range	Units	Pressure Reference

Option Availability for Transducer Types			
P200	Industrial	Low Power	Pharmaceutical / Biotechnical
1 Model	P215/P225/P250	P215/P225	
2 Circuit Type	A, B, C, D, L, M, T	L	A, B, C, D, L, M, T
3 Pressure Connection	B, C, G, H, I, J, K, P, V, W		S, T, V, W
4 Electrical Connection	A, B, C, D, F, I		
5 Options/Modifications	004, 005, 009, 017, 066, 071, 178	004, 005, 017, 066, 143, 178, 539, 583, 584, 670	
6 Pressure Range	0-10 to 0-50 psi		0-10 psi (0-3 bar) to varies with fitting
7 Units	psi, bar, kg/cm ² , KPa, in Hg		
8 Pressure Reference	gage, absolute, sealed		

DIMENSIONAL & CIRCUIT DRAWINGS



RECOMMENDED PRACTICES AND WARNINGS

Trans Metrics recommends careful consideration of the following factors when specifying and installing Trans Metrics pressure units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, proof pressure and max. temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to proof pressure or max. temperature is acceptable on a limited basis (i.e., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at proof pressure or maximum temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where dangerous runaway conditions could result.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. Orient unit so that moisture does not enter the enclosure via the electrical connection.
- Unit must not be altered or modified after shipment. Consult Trans Metrics if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- For all applications, a factory set unit should be tested before use.
- Electrical ratings stated in literature and on nameplate must not be exceeded. Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Use only factory authorized replacement parts and procedures.
- Do not mount unit in ambient temp. exceeding published limits.

LIMITED WARRANTY OF REPAIR AND REPLACEMENT

Seller warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Seller (F.O.B. Trans Metrics); provided, however, that this warranty applies only to equipment found to be so defective within a period of 12 months from the date of manufacture by the Seller. Seller shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Seller's representatives.

EXCEPT FOR THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES WHATSOEVER WITH RESPECT TO THE PRODUCT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIABILITY LIMITATION

SELLER'S LIABILITY TO BUYER FOR ANY LOSS OR CLAIM, INCLUDING LIABILITY INCURRED IN CONNECTION WITH (I) BREACH OF ANY WARRANTY WHATSOEVER EXPRESSED OR IMPLIED, (II) A BREACH OF CONTRACT, (III) A NEGLIGENT ACT OR ACTS (OR NEGLIGENT FAILURE TO ACT) COMMITTED BY SELLER, OR (IV) AN ACT FOR WHICH STRICT LIABILITY WILL BE IMPUTED TO SELLER IS LIMITED TO THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED HEREIN. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OF A LIKE GENERAL NATURE, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS OR PRODUCTION, OR LOSS OR EXPENSES OF ANY NATURE INCURRED BY THE BUYER OR ANY THIRD PARTY.

Trans Metrics specifications subject to change without notice.

INTERNATIONAL OFFICES

AUSTRALIA

United Electric Controls
(Australia) PTY Ltd
Unit 2, 615 Warrigal Road
Locked Bag 600
Ashburton, Victoria
3147, Australia
Phone: 613-9567-0750
FAX: 613-9567-0755

BELGIUM

United Electric Controls-Europe
G. Van Gervenstraat 19A
B-9120 Beveren-Waas, Belgium
Phone: 32-37554-383
FAX: 32-37552-747

CANADA

United Electric Controls
(Canada) Ltd
5320 Bradco Boulevard
Mississauga, Ontario
L4W 1G7 Canada
Phone: 905-625-5082
FAX: 905-625-5709

GERMANY

United Electric Controls
An Der Zentlinde 21
D-64711 Erbach, Germany
Phone: 496-062-7400
FAX: 496-062-7501

INDIA

United Electric Controls
Amar Hill, Saki Vihar Road
Powai, Mumbai 400 072
Phone: 91-22-857-6921
FAX: 91-22-857-1707

MALAYSIA

United Electric Controls, Far East
No. 1-2-2, 2nd Floor
Jalan 4/101C
Cheras Business Centre
Batu 5, Jalan Cheras
56100 Kuala Lumpur, Malaysia
Phone: 603-9133-4122
FAX: 603-9133-4155

MEXICO

United Electric Controls
Chihuahua 129-1 NTE
Unidad Nacional 89410
Madero, TAM
Mexico
Phone: 52-833-210-0646
FAX: 52-833-210-5761

U.S. SALES OFFICES

United Electric Controls/
Headquarters
180 Dexter Ave.
Watertown, MA 02472
Phone: 617-926-1000
FAX: 617-926-2568
www.ueonline.com

United Electric Controls
32 Highland Rd.
South Hampton, NH 03827
Phone: 603-394-0078
FAX: 603-394-0175

United Electric Controls
28 N. Wise Ave.
Freeport, IL 61032
Phone: 815-235-3501
FAX: 815-235-3847

United Electric Controls
1022 Vineyard Drive
Conyers, GA 30013
Phone: 770-483-8400
FAX: 770-929-8716

United Electric Controls
5829 Grazing Court
Mason, OH 45040
Phone: 513-398-3175
FAX: 513-398-3076

United Electric Controls
19335 Hadley
Stilwell, KS 66085
Phone: 913-685-2775
FAX: 913-685-2774

United Electric Controls
1753 Beach Street
San Francisco, CA 94123
Phone: 415-563-5811
FAX: 415-563-5909

5325 Naiman Parkway
Solon, Ohio 44139
Phone: 440-248-2229 / 888-782-2229
Fax: 440-248-7780
www.trans-metrics.com
email: sales@trans-metrics.com

