



# Protran® PR3200

DIFFERENTIAL PRESSURE TRANSMITTER



## DESCRIPTION

The PR3200 differential pressure transmitter uses two titanium alloy pressure sensors, offering high stability and performance with true wet/wet operation, suitable for use with all liquids and gases compatible with stainless steel and titanium.

The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability over a wide temperature range. The advanced sensor design consists of a piezoresistive silicon strain gauge circuit, which is epitaxially grown onto the surface of a sapphire diaphragm to form a single crystalline structure. The sapphire sensor element is then molecularly bonded to a titanium alloy sub-diaphragm. This enables the sensor to endure higher over-pressures and provides superb corrosion resistance. The completed sensor exhibits virtually no hysteresis and excellent long-term stability. With outstanding insulation properties, the sapphire substrate allows the sensor to operate over a very wide temperature range without loss of performance.

Applications include flow measurement with orifice plates and mass flow meters, plus static differential pressure measurement and control in combustion chambers, also condition monitoring and filter monitoring in high pressure hydraulic systems or any application on liquid or gas requiring reliable differential pressure measurement. Electrical connector is DIN plug and socket. Access to zero and span adjustment is by removing top plate for easy on-site adjustment. Pressure connection as standard is via two 1/4" BSP female connections. Mounting plate is available for bulkhead mounting. Ranges available from 0-500mbarDP to 0-200barDP (0-7.5 psiDP to 0-3,000 psiDP)

An optional ATEX certified version of this product is available approved for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).

- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 500mbarDP to 200barDP (7.5 psiDP to 3,000psiDP)
- 4-20mA TWO WIRE OUTPUT
- ACCURACY 0.30% NLHR
- OPTIONAL ATEX APPROVED VERSION
- WET/WET OPERATION
- UNI AND BI-DIRECTIONAL OPERATION
- HIGH PRESSURE DIFFERENTIAL RANGES AVAILABLE

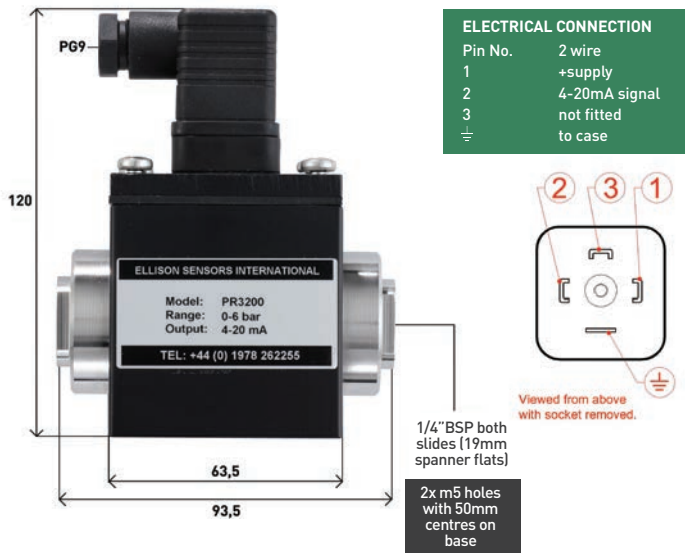


## PRESSURE RANGES PR3200

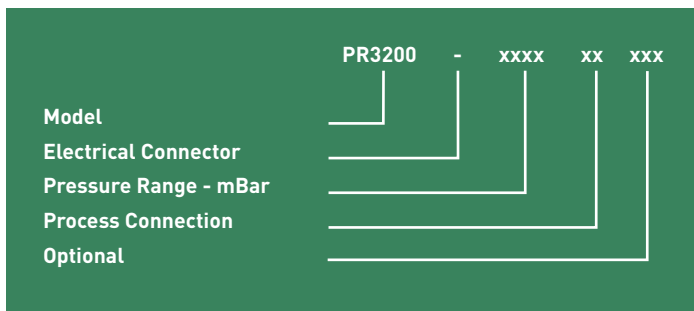
500mbar to 200bar (0-7.5 psi to 0-3,000 psi), see table below for list of all standard pressure ranges.

Range (bar/psi)	Order Code	Range (bar/psi)	Order Code
0-0.5 bar (0-7.5psi)	00.5	0-20 bar (0-290psi)	0020
0-1 bar (0-15psi)	0001	0-40 bar (0-600psi)	0040
0-2 bar (0-30psi)	0002	0-100 bar (0-1,500psi)	0100
0-4 bar (0-60psi)	0004	0-200 bar (0-2,900psi)	0200
0-10 bar (0-150psi)	0010		

## DIMENSIONS (in mm)



## ORDERING INFORMATION



### ELECTRICAL CONNECTION/OPTION

	Order Code
DIN 43650 plug and socket 4-20mA Output	-
DIN 43650 plug and socket 0-5Vdc Output	A
DIN 43650 plug and socket 0-10Vdc Output	B
DIN 43650 plug and socket 4-20mA Output ATEX	EX

### PROCESS CONNECTION

	Order Code
1/4" BSP female thread	AR
1/4" BSP female thread	AS

### EXAMPLE

	Order Code
Base Model	PR3200
DIN 43650 plug and socket 4-20mA Output	-
Pressure range 0-100 bar DP (0-1,500 psi)	0100
Pressure connection 1/4" BSP female	AR

### Correct Part Number

For options not listed contact sales team

### Order Code

-  
A  
B  
EX

### Order Code

AR  
AS

### Order Code

PR3200  
-  
0100  
AR

PR3200-0100AR

## SPECIFICATION

### PRESSURE REFERENCE

Differential pressure (DP) only.

### OVERPRESSURE

Pressure can exceed rated range by the multiple shown below without any damage or change in calibration above  $\pm 0.5\%$  FS. 1.5x Maximum static line pressure for all ranges.

### COMMON MODE (STATIC LINE PRESSURE)

DP Pressure Range	Maximum Static Line Pressure
0-0.5	2.5 bar (30 psi)
0-1	4 bar (60psi)
0-2	10 bar (150psi)
0-4	16 bar (200psi)
0-6	25 bar (300psi)
0-10	40 bar (600psi)
0-20	60 bar (1,000psi)
0-40	160 bar (2,500psi)
0-100	400 bar (6,000psi)
0-200	600 bar (8,700psi)

### OUTPUT SIGNAL

4-20 mA (2 wire configuration) as standard.

### ZERO OFFSET AND SPAN TOLERANCE

$\pm 0.16$  mA  
 $\pm 5\%$  FS zero adjustment with easy access trimming potentiometers.

### SUPPLY VOLTAGE

Measured across supply terminals on connector plug. 10-36Vdc for 4-20mA versions

### PROTECTION OF SUPPLY VOLTAGE

Protected against supply voltage reversal up to 50Vdc

### ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

$\pm 0.30\%$  FS Typical max. Best fit straight line.

### PRESSURE MEDIA

All fluids compatible with 316 stainless steel and titanium.

### OPERATING TEMPERATURE RANGE

Ambient/Media:  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $+185^{\circ}\text{F}$ )  
Storage:  $+5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  ( $+41^{\circ}\text{F}$  to  $+104^{\circ}\text{F}$ )

### TEMPERATURE EFFECTS

$\pm 2\%$  FS total error band for  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $+158^{\circ}\text{F}$ )  
Typical thermal zero and span coefficients  $\pm 0.03\%$  FS/ $^{\circ}\text{C}$

### ATEX APPROVAL (4-20mA versions only)

Ex II 1 G Ex ia IIC T4 Ga (zone 0)  
Ex II 1 D Ex ia IIIC T135°C Da (zone 20)  
EX I M 1 Ex ia I Ma (group I M1)

### ATEX SAFETY VALUES

$U_i = 28\text{V}$   
 $I_i = 119\text{mA}$   
 $P_i = 0.65\text{W}$   
 $L_i = 0.1$   
 $C_i = 74\text{Nf}$   
Temperature range =  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $+158^{\circ}\text{F}$ )  
Max. cable length = 45m ( $\sim 147\text{ft}$ )

### ELECTROMAGNETIC CAPABILITY

Emissions: EN61000-6-4  
Immunity: EN61000-6-2

### PRESSURE CONNECTION

1/4" BSP Female (others available on request)

### ELECTRICAL CONNECTION

Mating socket with screw terminal connections to DIN 43650, rated IP65

**DISCLAIMER:** ESI operates a policy of continuous product development. We reserve the right to change specification without prior notice. All products manufactured by ESI are calibrated using precision calibration equipment with traceability to international standards.

