

# esi

## PROTRAN® PR3200 Differential Pressure Transmitter

- Silicon-on- Sapphire sensor technology
- Pressure ranges 250 mbar DP to 200bar DP
- 4-20ma two wire output
- Accuracy 0.30% nlhr
- Intrinsically safe option
- Wet/wet operation
- Uni and Bi-directional operation
- Accurate at very wide DP 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 sensor exhibits virtually no hysteresis and excellent long-

## Specifications

The PROTRAN PR3200 differential pressure transmitter uses two Silicon-on-Sapphire pressure diaphragms, offering high stability and performance with true wet/wet operation, suitable for use with all liquids and gases compatible with stainless steel and alumina. Flush diaphragm models are available with integral or remote pressure diaphragms for hygienic applications.

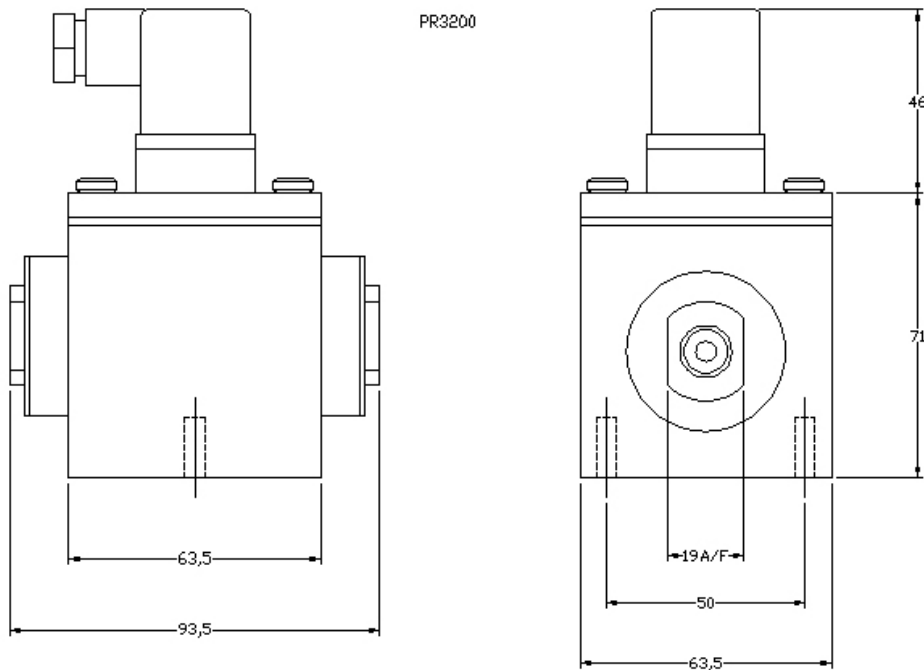
ATEX and IECEx approval and protection by intrinsic safety is optional and intended for installation and operation in zone 0, gas group IIC, temperature class T4 and zone 20 dust.

### Typical Applications include:

- Flow measurement with pivot tubes, orifice plates and mass flow meters
- Static differential pressure measurement
- Control in combustion chambers and clean rooms
- Condition monitoring
- Filter monitoring in high pressure hydraulic systems
- Any application on liquid or gas requiring reliable differential pressure measurement



## Dimensions (in mm)



## Electrical Connections

Pin	mA (2 wire)	Vdc (4 wire)	Vdc (3 wire)
1	+supply	-supply	common
2	4-20mA signal	+supply	+supply
3	N/C	+output	+output
⏏	to case	-output	to case

## Technical Data

Type	PR3200	PR3210/PR3230	PR3220/PR3240
Sensor Technology:	Silicon-on-Sapphire (SoS)		
Output Signal:	4-20 mA (2 wire)	0-5 V (4 or 3 wire)	0-10 V (4 or 3 wire)
Supply Voltage:	10-36 VDC	13-30 VDC	13-30 VDC
Pressure Reference:	Differential		
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V		
Standard Pressure Ranges (bar):	0-0.5 bar; 0-1 bar; 0-10 bar; 0-20 bar; 0-40 bar; 0-100 bar; 0-200 bar (other options available)		
Standard Pressure Ranges (psi):	0-7.5 psi; 0-15 psi; 0-150 psi; 0-750 psi; 0-1,500 psi; 0-3,000 psi (other ranges available)		
Common Mode (Static Line Pressure):	2.5 bar for 0-0.5 bar range; 4 bar for 0-1 bar range; 40 bar for 0-10 bar range; 60 bar for 0-20 bar range; 160 bar for 0-40 bar range; 400 bar for 0-100 bar range; 600 bar for 0-200 bar range		
Overpressure Safety:	1.5x maximum static line pressure for all ranges		
Load driving Capability:	4-20mA: $RL < [UB - 10 V] / 20 \text{ mA}$ (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1300 $\Omega$ )		
Accuracy NLHR:	$\leq \pm 0.3 \%$ of span BFSL (Optional higher accuracy version of $\leq \pm 0.1 \%$ of span BFSL available)		
Zero Offset & Span Tolerance:	$\pm 1.0\%$ FS at room temperature $\pm 5\%$ FS (approx.) adjustment with easy access trimming potentiometers		
Operating Ambient Temperature:	-20 °C to +85 °C (-4 °F to +185 °F)		
Operating Media Temperature:	-20 °C to +85 °C (-4 °F to +185 °F)		
Storage Temperature:	+5 °C to +40 °C (+41 °F to +104°F) Recommended Best Practice		
Temperature Effects:	$\pm 3.0\%$ FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients $\pm 0.05\%$ FS/ °C		
ATEX/IECEx Approval (4-20 mA version only):	EX II 1 G Ex ia IICT4 GA (Zone 0) Ex II 1 D Ex ia IIIC T135 C Da (Zone 20)		n/a
ATEX/IECEx Safety Values:	$U_i = 28 \text{ V}$ $I_i = 119 \text{ mA}$ , $P_i = 0.65 \text{ W}$ $L_i = 0.1 \mu\text{H}$ , $C_i = 74 \text{ nF}$ Temperature Range = -20 °C to +70 °C Max. cable length = 45 m		n/a
Electromagnetic Compatibility:	Emissions: EN61000-6-3; Immunity: EN61000-6-2; Certification: CE Marked		
Insulation Resistance:	> 100 M $\Omega$ @ 50 VDC		
Response Time 10-90%:	1 mS		
Wetted Parts:	SAE 304 stainless steel and titanium alloy		
Pressure Media:	All fluids compatible with SAE 304 stainless steel and titanium alloy		
Pressure Connection:	1/4" BSP female (other options available)		
Electrical Connection:	Mating socket EN175301-803 Form A (ex DIN43650) rated IP65 with PG9 cable entry (other options available)		
Net. Weight:	1 Kg		

## Order Matrix

Output	Wires	Type	Electrical Connection/Options	Pressure Range	Process Connection	
4-20 mA	2	PR3200				
0-5 V	4	PR3210				
	3	PR3230				
0-10 V	4	PR3220				
	3	PR3240				
Electrical Connections/Options						
DIN EN175301 plug and socket						
ATEX/IECEX certified			EX			
Pressure Range in bar						
0-500 mbar						00.5
0-1 bar						0001
0-10 bar						0010
0-50 bar						0050
0-100 bar						0100
0-200 bar						200
Process Connection						
1/4" BSP Female					AR	
1/4" NPT female					AS	

Order Number Example	PR3200-0200AR
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For options not listed please contact the sales team

**DISCLAIMER:** ESI Technology Ltd operates a policy of continuous product development. We reserve the right to change specification without prior notice. All products manufactured by ESI Technology Ltd are calibrated using precision calibration equipment, traceable to national measurement standards.