# **Protran**® PR3202

Low Pressure Differential Transmitter

0-250 mba

Range: Output:



- Wide range of low pressure ranges from 0-5 mbar
- Available for gauge reference or bi-directional measurement
- Durable designs for industrial and commercial installations
- ATEX/IECEx option available (includes M1 for mining applications)







#### Description

Our low range air differential pressure transmitter provides an accurate solution for low pressure sensing with ranges available from 0-5 mbar to 0-1,000 mbarDP. Incorporating the latest silicon sensor and electronics technologies, these 4-20 mA transmitters are fully temperature compensated for unrivalled stability at very low pressure.

Housed in an RFI shielded wall mountable box for EMC protection, these transmitters combine precise measurement for control at very low pressures, with the robustness and flexibility for industrial and commercial installations. An optional heavy-duty aluminium die-cast housing is available for the harshest environments.

Applications include flow measurement with pitot tubes, orifice plates and mass flow meters, plus static pressure measurement and control, in combustion chambers and clean rooms, or any application on air or gas requiring reliable ultra-low differential pressure measurement. Access to screw terminal electrical connections and to zero span potentiometers is by removing the front covers, making installation and on-site adjustment. Cable entry is through a compression seal gland, or optional M20 conduit fitting. Standard pressure connections are to push-on hose fittings for 4mm ID hose. Ranges available from 0-5 mbar to 0-1,000 mbar in DP, gauge reference or bidirectional. Ultra-low pressure ranges from 0-25 Pa are also available.

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

#### Dimensions (in mm)



# **Protran**<sup>®</sup> PR3202 Low Pressure Differential Transmitter



#### **Technical Data**

Туре:	PR3202	PR3203	PR3204			
Sensor Technology:	Piezoresistive Silicon					
Output Signal:	4-20 mA (2 wire) 0-5 V (3 wire) 0-10 V (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):	0-5 mbar; 0-10 mbar; 0-20 mbar; 0-50 n	nbar; 0-100 mbar; 0-250 mbar; 0-500 mb available)	par; 0-1,000 mbar (other options			
Standard Pressure Ranges (psi):	0-2 inH2O; 0-4 inH2O; 0-8 inH2O; 0-10 inH2	20; 0-12 inH2O; 0-20 inH2O; 0-1 psi; 0-1. psi (other options avialable)	5 psi; 0-3 psi; 0-4 psi; 0-7.5 psi; 0-15			
Overpressure Safety:	25 mbar max. for ranges 0-5 mbar to 0-1 max. f	0 mbar; 200 mbar max. for ranges 0-20 or ranges 0-150 mbar to 0-1,000 mbar	mbar to 0-100 mbar; 1,200 mbar			
Common Mode (Static line pressure):	375 mbar equal to both ports for ranges 0-5 to 0-10 mbar; 2 bar max. equal to both ports for ranges 0-20 mbar to 0-1,000 mbar					
Load Driving Capability:	4-20 mA: RL < [UB - 13 V] / 20 mA (e.g. with supply voltage (UB) of 36 V, max. load (RL) is 1150 $\Omega$ )					
Accuracy NLHR:	$\leq \pm 0.3$ % of span BFSL					
Zero Offset and Span Tolerance:	$\pm$ 1.0% FS at room temperature $\pm$ 5% FS (approx.) adjustment via trimming potentiometers located beneath the enclosure lid					
Operating Ambient Temperature:	-20 °C to +70 °C (-4 °F to +158 °F)					
Operating Media Temperature:	-20 °C to +70 °C (-4 °F to +158 °F)					
Storage Temperature:	+5 °C to +40 °C (+41 °F to +104°F) Recommended Best Practice					
Temperature Effects:	$\pm 2.0\%$ FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients $\pm 0.04\%$ FS/ °C					
ATEX/IECEx Approval Option (4-20 mA version 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 1 M1)					
ATEX/IECEx Safety Values:	Ui = 28 V li = 119 mA Pi = 0.65 W Li = 0.1 µH Ci = 74 nF Temperature Range = -20 °C to +70 °C Max. cable length = 45 m					
Electromagnetic Compatibility:	Emissions: EN61000-	6-3; Immunity: EN61000-6-2; Certificatio	n: CE Marked			
Insulation Resistance:	> 100 MΩ @ 50 VDC					
Response time 10-90 %:		1 mS				
Wetted Parts:	Nickel plated brass, sil	icone tubing, silicon diaphragm, glass fi	lled polyamide			
Pressure Media:	Non-corrosive media such as non-ionic fluids, air and dry gases					
Pressure Connection:	4 m	m I.D. hose (other options available)				
Electrical Connection:	Screw terminals for conductor sizes 0.2-2 gland with	mm2 are located beneath the enclosur compression seal for cable sizes 7-10.5	e lid. Cable entry is via IP66 cable mm			
Net. Weight (Kg):		0.3 Kg	0.3 Kg			

# **Protran**<sup>®</sup> PR3202 Low Pressure Differential Transmitter



#### **Order Matrix**

Output	Wires	Туре	Electrical Connection/ Options	Pressure Range	Process Connection
4-20mA	2	PR3202			
0-5 V	_	PR3203			
0-10 V	5	PR3204			
<b>Electrical Connection/Options</b>					
M20 Cable Gland (PR3202 only)			-		
ATEX/ IECEx certified			EX		
Alluminium Enclosure			AL		
Pressure Range in mbar/ bar					
0-5 mbar				0005	
0-50 mbar				0050	
0-100 mbar				0100	
0-500 mbar				0500	
Process Connection					
4.8mm tube connection (push-on stem)					AW
1/4" BSP male (G1/4)					AB

Order Number Example PR3202EX0005AW

For options not listed please contact the sales team

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# **621**

# Protran® PR3920

Subsea Differential Pressure Transmitter





- Silicon-on-Sapphire sensor technology for outstanding performance
- Standard sensing range 0-50 bar DP
- 690 bar line pressure
- 1,200 bar secondary containment
- Submersion to 3,000 metres sea level
- High accuracy option
- NACE corrosion resistance
- Hyperbaric testing and Environmental Stress Screening (ESS Testing)
- ATEX/IECEx option available (includes M1 for mining applications)



Vers. 20/1/Eng





#### Description

The PR3920 differential pressure transmitter provides very accurate low pressure wet-wet differential pressure measurement on extremely high line pressure sources. Designed for permanent installation in very demanding subsea applications the housing is completely sealed to resist 300 bar external pressure. Intended for submersion in pressurised dielectric oil with seawater for monitoring of subsea well control valves or hydraulic pressure measurement.

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 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.

The PR3920 pressure transmitter provides surface mounting with a stainless steel mounting plate and dual redundant o-ring face seals. Both the high and low pressure ports can withstand 1,000bar overpressure with no damage or loss of performance. The titanium alloy wetted parts provide conformance to NACE corrosion resistance requirements. Electrical connection is via a heavy duty PTFE cable with optional angle of orientation. Output signal is a 4-20 mA, 2 wire current loop which can be powered from and external 10-36 Vdc supply. Application includes control of chemical injection for sub-sea wells for oil and gas extraction.

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

#### Dimensions (in mm)

ELECTRI	CAL CONNECTION	40.0	
<b>Colour</b> Red Blue	<b>Function</b> Supply (10-36Vdc) Signal (4-20mA)		11,2





#### **Technical Data**

Туре	PR3920			
Sensor Technology:	Silicon-on-Sapphire (SoS)			
Output Signal:	4-20 mA (2 wire)			
Supply Voltage:	10-36 VDC			
Pressure Reference:	Differential Sealed Gauge			
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V			
Differential Pressure Range:	0-750psi (51 barDP)			
Overpressure Safety:	1.5x maximum static line pressure for all ranges			
Secondary Pressure Containment:	1,200 bar max			
Common Mode (Static line pressure):	To both ports simultaneously 690bar with less than 1%FS change on output signal.			
Load Driving Capability:	4 – 20 mA: RL < [UB - 10 V] / 20 mA; (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1300 $\Omega$ )			
Accuracy NLHR:	≤ ±0.25 % of span BFSL			
Zero Offset and Span Tolerance:	±0.20 mA			
Operating Ambient Temperature:	-10°C to +70°C (+14 °F to +158 °F)			
Operating Media Temperature:	-10°C to +70°C (+14 °F to +158 °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 – +70°C. Typical thermal zero and span coefficients $\pm 0.05\%$ FS/ °C			
ATEX/IECEx Approval Option:	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 1 M1)			
ATEX/IECEx Safety Values:	$Ui = 28 V$ $Ii = 119 mA$ $Pi = 0.65 W$ $Li = 0.1 \mu H$ $Ci = 74 nF$ Temperature Range = -20°C - +70°C Max. cable length = 45 m			
Electromagnetic Compatibility:	Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked			
Insulation Resistance:	> 1GΩ @ 50 VDC			
Response time 10-90 %:	1 mS			
Operating Environment:	Sealed for immersion in pressurised dielectric fluid up to 300bar and for short periods in seawater.			
Wetted Parts:	SAE 316 stainless steel and titanium alloy			
Pressure Media:	All fluids compatible with SAE 316 stainless steel and titanium alloy			
Corrosion Resistance:	NACE compliant materials			
Pressure Connection:	Face sealing mounting plate with dual redundant elastomeric O ring seals on both pressure ports.			
Electrical Connection:	Raychem wire (optional cable outlet orientation available on request)			
Net. Weight (Kg):	Subject to specification			

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# Protran<sup>®</sup>PR3200

Differential Pressure Transmitter





- Wide range of pressure ranges to 200 bar DP
- WET/WET or DRY/DRY operation
- Available for gauge reference or bi-directional measurement
- Durable designs for industrial and • commercial installations
- R.F.I. shielded for protection against • electromagnetic radiation
- ATEX/IECEx option available • (includes M1 for mining applications)







#### 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 0-500 mbarDP to 0-200 barDP

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

#### Dimensions (in mm)

ELECTRICAL CONNECTION (mA)				1/4" BSP		
₽ 1 2 3 ⊥	'in No.	2 wire +supply 4-20mA N/C to case	signal	FEMALE BOTH SIDES (19mm spanner flats)		
E	LECTRI	CAL CONN	ECTION (Vdc)	CONTRONALISED 13 Model: PR3200 Output: 4-20 mA		
₽ 1 2 3 ⊥	in No.	4 wire -supply +supply +output -output	3 wire common +supply +output to case	63.5 93.5		

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# $Protran \ ^{ e} PR3200 \ \text{Differential Pressure Transmitter}$



#### **Technical Data**

Туре	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 wi				
Supply Voltage:	10-36 VDC	10-36 VDC	13 – 30 VDC		
Pressure Reference:		Differential			
Protection of Supply Voltage:	Protected ag	ainst 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 (othe	r 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 r	anges available)		
Overpressure Safety:	1.5x maxin	num static line pressure for all ranges			
Common Mode (Static line pressure):	2.5 bar for 0-0.5 bar range; 4 bar for 0-1 bar 0-40 bar range; 400 ba	range; 40 bar for 0-10 bar range; 60 bar r for 0-100 bar range; 600 bar for 0-200 l	for 0-20 bar range; 160 bar for oar range		
Load Driving Capability:	4-20mA: RL < [UB - 10 V] / 20 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 and 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 Option (4-20 mA version 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 1 M1)				
ATEX/IECEx Safety Values:	$\label{eq:2.1} \begin{array}{l} Ui = 28  V \\ Ii = 119  \text{mA}, Pi = 0.65  W \\ Li = 0.1  \mu\text{H}, Ci = 74  \text{nF} \\ \end{array} \\ \begin{array}{l} \text{Temperature Range} = -20  ^\circ \! C  \text{to}  +70  ^\circ \! C \\ \\ \text{Max. cable length} = 45  \text{m} \end{array}$				
Electromagnetic Compatibility:	Emissions: EN61000-6-3; Immunity: EN61000-6-2; Certification: CE Marked				
Insulation Resistance:	> 100 MΩ @ 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 (Kg):	1 Kg				

## Protran<sup>®</sup> PR3200 Differential Pressure Transmitter



#### **Order Matrix**

Output	Wires	Туре	Electrical Connection/ Options	Pressure Range	Process Connection
4-20 mA	2	PR3200			
0.51/	4	PR3210			
0-5 V	3	PR3230			
0-10.1/	4	PR3220			
0.10.1	3	PR3240			
<b>Electrical Connection/Options</b>					
DIN EN175301 plug and socket			-		
ATEX/ IECEx certified			EX		
Pressure Range in mbar/ bar					
0-500 mbar				0.05	
0-1 bar				0001	
0-10 bar				0010	
0-50 bar				0050	
0-100 bar				0100	
0-200 bar				0200	
Process Connection					
1/4" BSP female					AR
1/4" NPT female					AS

Order Number Example

PR3200-0200AR

For options not listed please contact the sales team

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