Protran® PR9000

Heavy Duty
Pressure Transmitter

- Silicon-on-Sapphire sensor technology for outstanding performance and reliability

- Pressure ranges up to 1,500 bar

- All stainless steel, robust construction for harsh environments

- Wetted parts in various materials

- ATEX/IECEx option available, including M1 for mining applications

RoHS
2011/65/EU

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Description

The PR9000 Series pressure transmitters have been designed to meet the requirements of the majority of demanding industrial and process applications for pressure measurement requiring an output of 4-20 mA. With robust stainless steel housing construction, this range of pressure transmitters incorporates the latest Silicon- on-Sapphire strain gauge technology, together with a custom design amplifier offering excellent stability and accuracy over a long service life.

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.

An important feature of this transmitter is the easily accessible screw terminal connections and the zero/span potentiometers conveniently positioned inside the screw cover head for simplified on-site adjustment and installation. Cable entry to the transmitter head is through a PG9 gland or an optional M20 conduit fitting. Pressure connection is 1/2" BSP as standard, 1/2" BSPT, 1/2" NPT are also available together with hygienic and process flanges with media barriers. Pressure ranges are 0-100 mbar to 0-1,500 bar. Typical applications for this series of standard transmitters includes mechanical and civil engineering, process plant, production test facility, water resource, and power generation installations, and for any fluid or gas application requiring stable, repeatable and accurate pressure measurement.

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 M1).
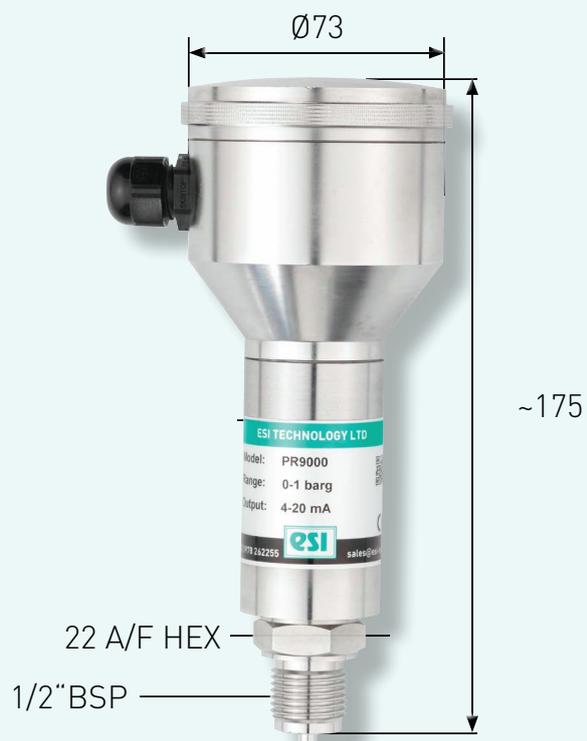
Dimensions (in mm)

ELECTRICAL CONNECTION (mA)

Pin No.	2 wire
1	+supply
2	4-20mA signal
3	not fitted
⏚	to case

ELECTRICAL CONNECTION (Vdc)

Pin No.	4 wire	3 wire
1	-supply	common
2	+supply	+supply
3	+output	+output
⏚	-output	to case

Ø73

~175

22 A/F HEX

1/2"BSP

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Technical Data

Type:	PR9000
Sensor Technology:	Silicon-on-Sapphire (>1 bar)/ Isolated Piezoresistive Silicon (≤1 bar)
Output signal:	4 - 20 mA (2 wire)
Supply Voltage:	13 - 36 VDC
Pressure Reference:	Gauge
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V
Standard Pressure Ranges (bar):	0-1 bar Vac; 0-500 mbar; 0-1 bar; 0-10 bar; 0-25 bar; 0-100 bar; 0-250 bar; 0-700 bar; 0-1,500 bar (Other options available)
Standard Pressure Ranges (psi):	0-30 in Hg; 0-7.5 psi; 0-15 psi; 0-150 psi; 0-300 psi; 0-1,500 psi; 0-3,000 psi; 0-10,000 psi; 0-20,000 psi (other options available)
Overpressure Safety:	2x for ranges 1 bar to 600 bar; 1.5x for 1000 bar range; 1.1x for 1,500 bar range
Load Driving Capability:	4-20 mA: RL < [UB - 13 V] / 20 mA (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1150 Ω)
Accuracy NLHR:	≤ ±0.2 % of span BFSL
Zero Offset and Span Tolerance:	±0.5 %FS at room temperature ±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:	±1.5 %FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients ±0.02 %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 µH Ci = 66 nF Temperature Range = -20 °C to +70 °C Max. cable length = 85 m
Electromagnetic Compatibility:	Emissions: EN61000-6-4 Immunity: EN61000-6-2 Certification: CE Marked
Insulation Resistance:	> 100 MΩ @ 50 VDC
Response time 10-90 %:	1 mS
Wetted Parts:	SAE 316 stainless steel and titanium alloy
Pressure Media:	All fluids compatible with SAE 316 stainless steel and titanium alloy
Pressure Connection:	1/2" BSP male (G1/2); 1/2" NPT male (other options available)
Electrical Connection:	Screw terminals for conductor sizes 0.2 - 2.0 mm2 are located beneath the screw lid. Cable entry to head is through an IP68 cable gland with compression seal for cable sizes 4 - 8 mm. Optional M20 Conduit fitting is available.

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Order Matrix

Output	Type	Electrical Connector	Pressure Range	Process Connection
4-20 mA (2 wire)	PR9000			

Electrical Connection / Option

		Electrical Connector		
Cable gland IP68		–		
M20 Conduit		M		
ATEX/ IECEx certified with DIN EN175301 plug and socket (PR9000 only)		EX		

Pressure Range in bar

			Pressure Range	
0-1 bar Vac			V001	
0-0.5 bar			0.05	
0-1 bar			0001	
0-10 bar			0010	
0-25 bar			0025	
0-100 bar			0100	
0-250 bar			0250	
0-700 bar			0700	
0-1,500 bar			1500	

Process Connection

				Process Connection
1/2" BSP male (G1/2)				AC
1/2" NPT male				AN

Order Number Example　　　　　PR9000**EX**1000AC

For options not listed please contact sales team.

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