



Protran PR3913

Control Valve
Pressure Transmitter



- Silicon-on-Sapphire sensor technology for outstanding performance
- Submersion to 9,850 ft (3,000 m) sea level
- Pressure ranges available to 1,000 bar (15,000 psi)
- High accuracy option
- Hyperbaric testing to 9,850 ft (3,300 m) depth
- Environmental Stress Screening (ESS Testing)
- Suitable for ROV and deep sea test equipment
- Comprehensive documentation package and certification
- ATEX/IECEx option available (includes M1 for mining applications)



Description

The PR3913 Valve-Mountable pressure transmitter has been designed to meet the requirements of the sub-sea oil industry and is configured to mount directly to the industry standard control valve flange arrangement.

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.

Housed in fully welded body with wetted parts conforming to the NACE recommendation for material corrosion resistance,

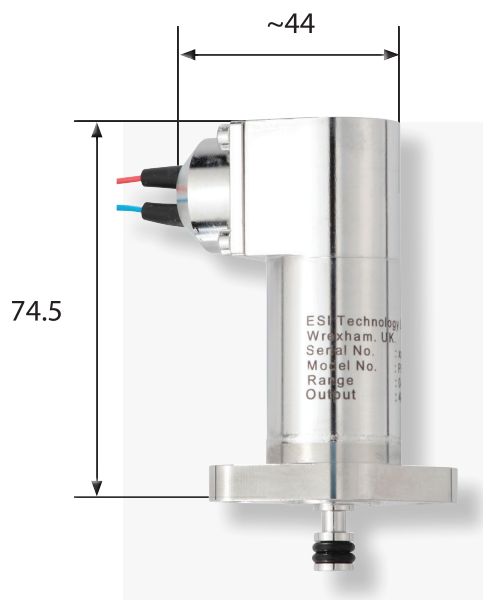
this product will provide a durable solution for long term accurate pressure measurement even when permanently situated in extreme depth sub-sea environments. The pressure connection is achieved with an 8mm diameter stem with integral dual redundant o-ring seal grooves. The fitting is constructed from Inconel 625 for high chemical resistance. Providing a two wire output signal of 4-20 mA with high stability and repeatability for pressure ranges up to 1,000 bar. Intended for permanent immersion in pressurised dielectric oil and protected from ingress with a high pressure glass-to-metal lead through the product can withstand external pressure up to 3,000 metres depth water and provides secondary pressure containment up to 1,650 bar. Units can be supplied with hyperbaric test certificates to 3,000 metres water submersion. Electrical connection is via strong PTFE Raychem Flexlite leads. Pressure ranges available from 0-200 bar to 0-1,000 bar.

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)	
Red	Supply (10-36Vdc)
Blue	Signal (4-20mA)



Technical Data

Type:	PR3913
Sensor Technology:	Silicon-on-Sapphire (SoS)
Output Signal:	4 – 20 mA (2 wire)
Supply Voltage:	10 – 36 VDC
Pressure Reference:	Sealed gauge
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V
Standard Pressure Ranges (bar):	0 – 228 bar; 0 – 379 bar; 0 – 569 bar; 0 – 759 bar; 0 – 1,035 bar (other options available)
Standard Pressure Ranges (psi):	0-3,000 psi; 0-5,000 psi; 0-8,000 psi; 0-11,000 psi; 0-15,000 psi (other options available)
Overpressure Safety:	2x for ranges up to 759 bar; 1.5x for 1,035 bar
Load Driving Capability:	4 – 20 mA: $RL < [UB - 10 V] / 20 \text{ mA}$; (e.g. with supply voltage (UB) of 36 V, max. load (RL) is 1300 Ω)
Accuracy NLHR:	$\leq \pm 0.25 \%$ of span BFSL
Zero Offset and Span Tolerance:	$\pm 0.10 \text{ mA}$
Operating Ambient Temperature:	-20°C to +40°C (-4 °F to +104 °F)
Operating Media Temperature:	-20°C to +40°C (-4 °F to +104 °F)
Storage Temperature:	+5 °C to +40 °C (+41 °F to +104°F) Recommended Best Practice
Temperature Effects:	$\pm 0.015\%$ fs total error band for -20 °C to +40 °C; span coefficients $\pm 0.005\%$ FS/°C.
ATEX/IECEx Approval:	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:	$U_i = 28 \text{ V}$ $I_i = 119 \text{ mA}$ $P_i = 0.65 \text{ W}$ $L_i = 0.1 \mu\text{H}$ $C_i = 74 \text{ nF}$ Temperature Range = -20 °C to +70 °C Max. cable length = 45 m
Ingress Protection:	Fully welded housing. Rated IP67 when correctly installed to conduit connection.
Electromagnetic Capability:	Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked
Insulation Resistance:	> 500 M Ω @ 50 VDC
Response time 10-90 %:	1 mS
Wetted Parts:	Inconel 625 with titanium alloy measurement cell
Pressure Media:	All fluids compatible with Inconel 625 and titanium alloy
Pressure Connection:	Many specialised pressure connection options available to suit individual requirements. Contact the sales team for more information.
Electrical Connection:	Cable outlet or Subsea connector options available
Net. Weight (Kg):	Subject to specification

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.