



# Protran® PR3913

SUBSEA CONTROL VALVE  
PRESSURE TRANSMITTER



## 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 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.

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. Optional connections are available. Alternative connections are available. The fitting is constructed from Inconel 625 for high chemical resistance. Providing a two wire output signal of 4-20mA with high stability and repeatability for pressure ranges up to 1000bar+. 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 3000 metres depth water and provides secondary pressure containment up to 1650bar. Units can be supplied with hyperbaric test certificates to 3000metres water submersion. Electrical connection is via strong PTFE Raychem Flexlite leads. Pressure ranges available from 0-200bar to 0-1000bar.

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 MI).

- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES FROM 0-200bar TO 0-1000bar
- 4-20mA TWO WIRE OUTPUT
- ACCURACY 0.25% NLHR
- OPTIONAL ATEX VERSION
- HYPERBARIC TEST CERTIFICATE
- SUBMERSION TO 3000mtrs DEPTH

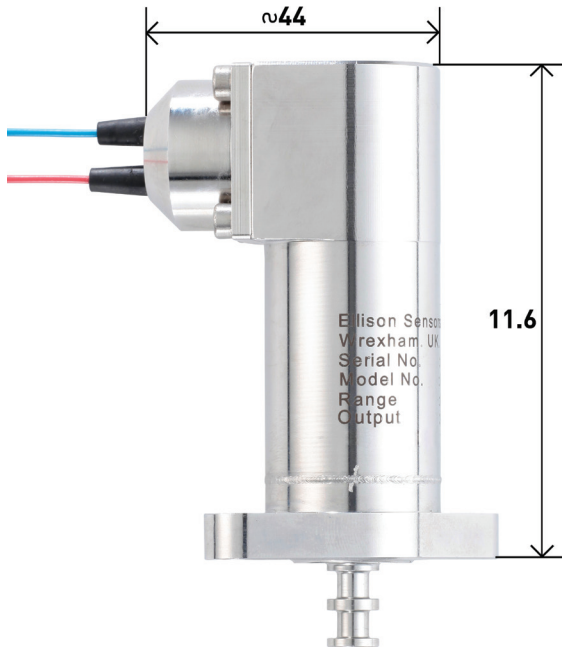


## PRESSURE RANGES

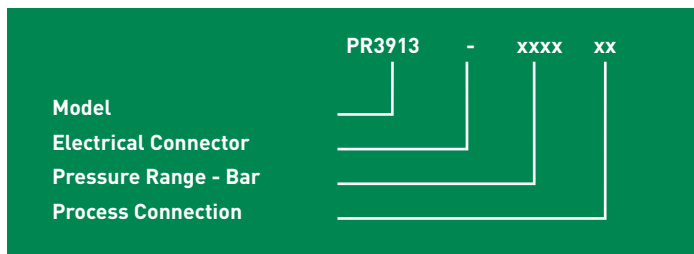
Typical ranges from 0-200bar to 0-1000bar. Contact the sales office for further information.

## DIMENSIONS (in mm)

ELECTRICAL CONNECTION	
Colour code	Function
Red	Supply (10-36Vdc)
Blue	Signal (4-20mA)



## ORDERING INFORMATION



The PR3913 is available with numerous design options. Please contact the sales office for further information.

**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 with traceability to international standards.

## SPECIFICATION

### PRESSURE REFERENCE

Sealed gauge

### OVERPRESSURE

Pressure can be exceeded by up to a minimum of 1.5x with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

### OUTPUT SIGNAL

4-20 mA (2 wire)

### ZERO OFFSET AND SPAN TOLERANCE

$\pm 0.10$ mA

### SUPPLY VOLTAGE

Measured across supply terminals on connector plug  
10-36Vdc min

### PROTECTION OF SUPPLY VOLTAGE

Protected against supply voltage reversal up to 50Vdc.

### LOAD DRIVING CAPABILITY

Calculate max. load  $R_s = (U_b - 10V) / 20mA$   
e.g. with supply voltage load of 32Vdc, maximum load is 1100ohms.

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

$\pm 0.25\%$  FS Typical Max, Best fit straight line.

### PRESSURE MEDIA

Hydraulic control fluids (mineral and synthetic oils)

### OPERATING TEMPERATURE RANGE

Ambient/Media:  $-20^\circ\text{C}$  to  $+40^\circ\text{C}$   
Storage:  $5^\circ\text{C}$  to  $+40^\circ\text{C}$

### TEMPERATURE EFFECTS

$\pm 0.015\%$ fs total error band for  $-20^\circ$  to  $+40^\circ\text{C}$ .  
Typical thermal zero and span coefficients  $\pm 0.005\%$ FS/ $^\circ\text{C}$ .

### ATEX 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 I M1)

### ATEX SAFETY VALUES

$U_i = 28V$   
 $I_i = 119mA$   
 $P_i = 0.65W$   
 $L_i = 0.1$   
 $C_i = 74nF$   
Temperature range =  $-20^\circ\text{C}$  to  $+70^\circ\text{C}$   
Max. cable length = 45m

### ELECTROMAGNETIC CAPABILITY

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

### 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