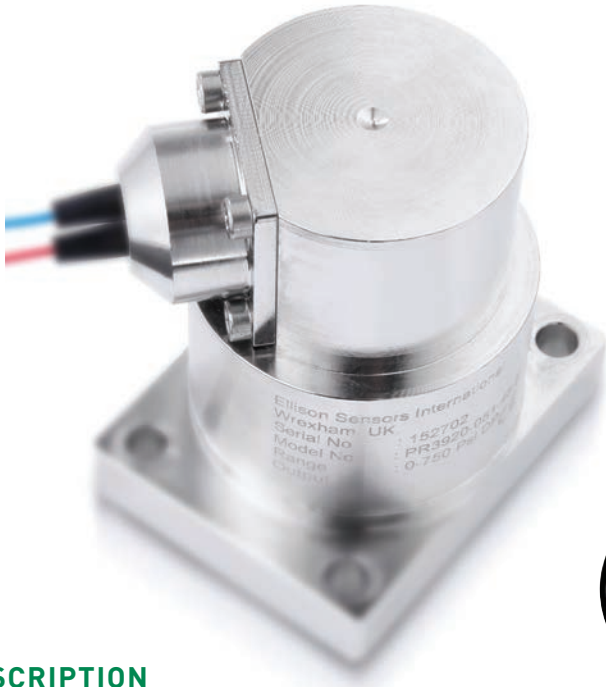




# Protran® PR3920

SUBSEA D.P. TRANSMITTER



## 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 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.

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 1000bar 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 4-20mA, 2 wire current loop which can be powered from an external 10-36Vdc supply. Application includes control of chemical injection for sub-sea wells for oil and gas extraction.

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
- STANDARD SENSING RANGE 0-50barDP
- 690bar LINE PRESSURE
- 1200bar SECONDARY CONTAINMENT
- 3000metres SUBMERSIBLE DEPTH
- 4-20mA TWO WIRE OUTPUT
- ACCURACY 0.25% NLHR
- OPTIONAL ATEX APPROVED VERSION
- NACE CORROSION RESISTANCE
- TITANIUM ALLOY DIAPHRAGM

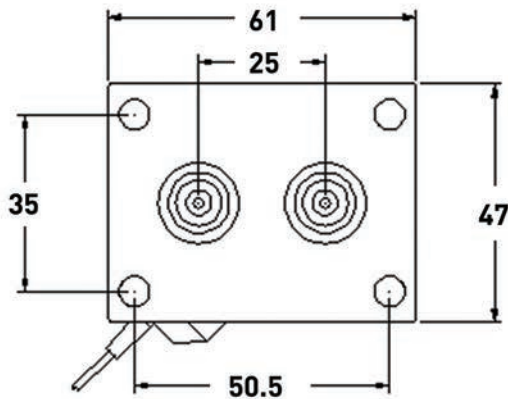
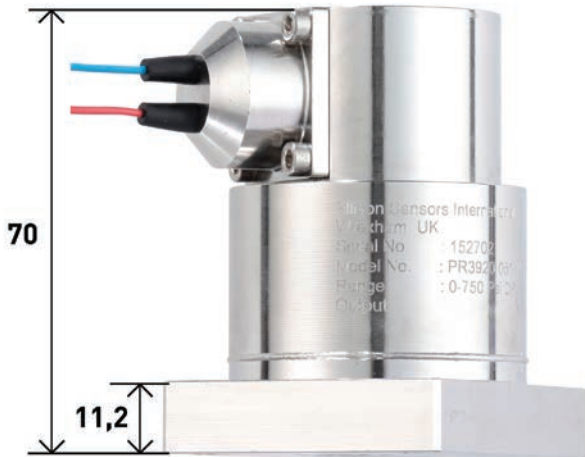


## PRESSURE RANGES

The standard calibrated range is 0-50bar with a line pressure of 0-690bar. The PR3920 can be designed to meet the required specification of the application. Contact the sales team for further information.

## DIMENSIONS (in mm)

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



**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

Differential sealed gauge

### DIFFERENTIAL PRESSURE RANGE

0-750psi (51barDP)

### LINE PRESSURE

To both ports simultaneously 690bar with less than 1%FS change on output signal.

### OVERPRESSURE

Either pressure ports can withstand up to 690bar with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

### OUTPUT SIGNAL

4-20mA (2 wire)

### ZERO SETTING

4mA  $\pm 0.20$ mA

### SPAN TOLERANCE

16mA.  $\pm 0.20$ mA

### SUPPLY VOLTAGE

Measured across supply terminals on connector plug. 10-36Vdc min (Unregulated)

### PROTECTION OF SUPPLY VOLTAGE

Protected against supply voltage reversal up to 50Vdc

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

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

### PRESSURE MEDIA

Sub-sea chemicals, typically wax and scale inhibitors

### CORROSION RESISTANCE

NACE compliant materials

### SECONDARY PRESSURE CONTAINMENT

1200bar max

### OPERATING ENVIRONMENT

Sealed for immersion in pressurised dielectric fluid up to 300bar and for short periods in seawater.

### TEMPERATURE RANGE

Ambient/Media:  $-10^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$   
Storage:  $5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$

### TEMPERATURE EFFECTS

$\pm 1.5\%$ FS total error band for  $-10^{\circ}$  to  $+70^{\circ}\text{C}$   
Typical thermal zero and span coefficients  $\pm 0.02\%$ 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

Ui = 28V  
Ii = 119mA  
Pi = 0.65W  
Li = 0.1  
Ci = 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

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)