



# Protran<sup>®</sup> PR3930

Subsea Pressure Transmitter  
with RS-485 Interface



- Suitable for ROV and deep sea test equipment
- Silicon-on-Sapphire sensor technology for outstanding performance
- Submersion to 6,000 mtrs depth
- Pressure ranges available to 1,500 bar
- High accuracy option
- Hyperbaric testing and Environmental Stress Screening (ESS Testing)
- RS-485 communication up to 1200m
- Selectable baud rate
- Resistant to interference from noise



## Description

The PR3930 subsea pressure transmitter has been designed to meet the demanding requirements of pressure measurement at deep levels of immersion, especially in oil industry applications. It can be configured to suit a multitude of applications and with proprietary RS-485 interface, each sensor can be allocated a unique device address and connected in series to other sensors and devices on the same communications link.

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 a fully welded body, this product will provide a durable solution for long-term accurate pressure measurement even when permanently situated in extreme depth sub-sea environments. Providing a half-duplex digital RS-485 output signal and 0-5 V analog output, the PR3930 provides high stability and repeatability for pressure ranges up to 1,500 bar. Intended for permanent immersion the product can withstand external pressures of up to 6,000 metres depth water. Units can be supplied with hyperbaric test certificates to 3,000 metres water submersion. Electrical connection is via an 8 pin Subconn MCBH8M connector (6 pin option available).

## Dimensions (in mm)

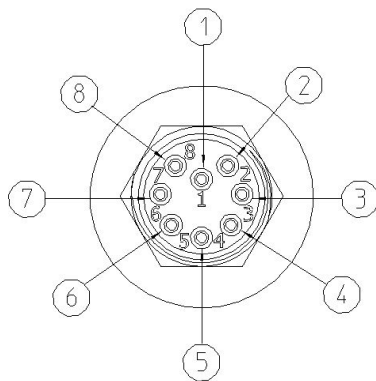
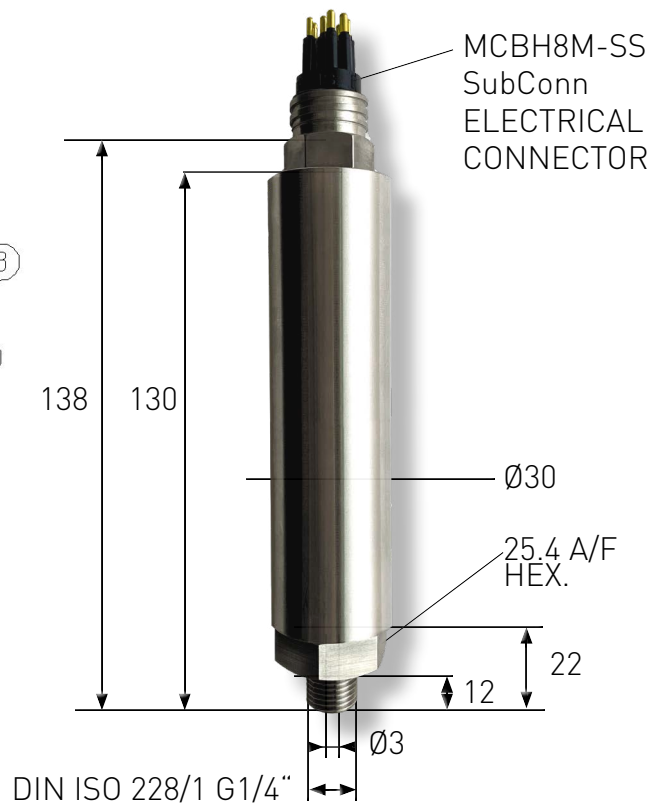


Table 1

Pin No	Designation
1	RS485(B)
2	RS485(A)
3	Case Ground
4	Common Ground
5	DS Power IN
6	Analog Output
7	N/C
8	N/C



PR3930-XXXXAB



## Technical Data

Type	PR3930
Sensor Technology:	Silicon-on-Sapphire
Output Signal (Digital):	RS-485 Interface, proprietary communications protocol
Digital Signal Baud Rate:	9600, 14400, 19200, 28800, 57600
Output Signal (Analogue):	0V – 5V analog output, 16bit
Sample Rate:	5Hz (max – digital), 1kHz (max – analog)
Zero Output:	0V
Full Scale Output:	5V
Calibration Output:	5Hz (max – digital), 1kHz (max – analog)
Zero Adjustment Range:	User Programmable
Span Adjustment Range:	User Programmable
Supply Voltage:	6-36VDC
Pressure Reference:	Sealed Gauge
Protection of Supply Voltage:	Supply: up 36V Analog Output: -0.3V to 5.3V Digital Output: ±15KV ESD
Standard Pressure Ranges (bar):	0 -100 bar; 0 - 250 bar; 0-400 bar; 0-600 bar; 0-1,000 bar; 0 - 1,500 bar (other ranges available)
Standard Pressure Ranges (psi):	0-1,500 psi; 0-3,000 psi; 0-6,000 psi; 0-8,700 psi; 0-15,000 psi; 0-20,000 psi (other ranges available)
Overpressure Safety:	See table 2
Accuracy NLHR:	digital: ±0.15% of span BFUL, analog: ±0.25% of span BFUL
Zero Offset and Span Tolerance:	±0.6% FS
Operating Ambient Temperature:	-40°C to +60°C (-40°F to +140°F)
Operating Media Temperature:	-40°C to +60°C (-40°F to +140°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 +60 °C. Typical thermal zero and span coefficients ±0.015 %FS/ °C
Electromagnetic Compatibility:	Emissions: BS EN61000-6-3+A1 Immunity: BS EN61000-6-2 Certification: CE Marked
Response time 10-90 %:	(1000/update rate) + 1ms, <17ms
Bus Addressing:	User Programmable
Wetted Parts:	AISI 316L MR0175 stainless steel housing with titanium alloy measurement cell
Pressure Media:	All fluids compatible with AISI 316L MR0175 stainless steel and titanium alloy
Pressure Connection:	1/4" BSP male (G1/4); 1/2" BSP male (G1/2) and 1/4" BSP female (others options available)
Electrical Connection:	8 pin Subconn MCBH8M connector, see table 1 (6 pin option available)
Net. Weight (Kg):	<0.5kg

Table 2

Pressure Range	Proof Pressure	Burst Pressure
0-100...0-400	200%	300%
0-600	200%	300%
0-1000	150%	200%
0-1500	110%	150%



## Order Matrix

Output	Type	Electrical Connection/Options	Pressure Range	Process Connection
RS485	PR3930			
<b>Electrical Connection/Options</b>				
MCBH08M-SS		-		
<b>Pressure Range in bar (sealed gauge)</b>				
0-10 bar (0-150 psi)			0010	
0-16 bar (0-200 psi)			0016	
0-25 bar (0-300 psi)			0025	
0-60 bar (0-870 psi)			0060	
0-100 bar (0-1,500 psi)			0100	
0-160 bar (2,320 psi)			0160	
0-250 bar (0-3,000 psi)			0250	
0-400 bar (0-6,000 psi)			0400	
0-600 bar (0-8,700 psi)			0600	
0-1000 bar (0-15,000 psi)			1000	
0-1500 bar (0-20,000 psi)			1500	
<b>Process Connection</b>				
1/4" BSP Male (G1/4)				AB
1/2" BSP Male (G1/2)				AC
1/4" BSP Female				AR

<b>Order Number Example</b>	PR3930-0010AR
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For options not listed please contact the sales team

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.