

# HSPM-10

Subsea Pressure Transmitter



- 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 2,000 bar
- High accuracy option
- Optional temperature output
- Hyperbaric testing and Environmental Stress Screening (ESS Testing)



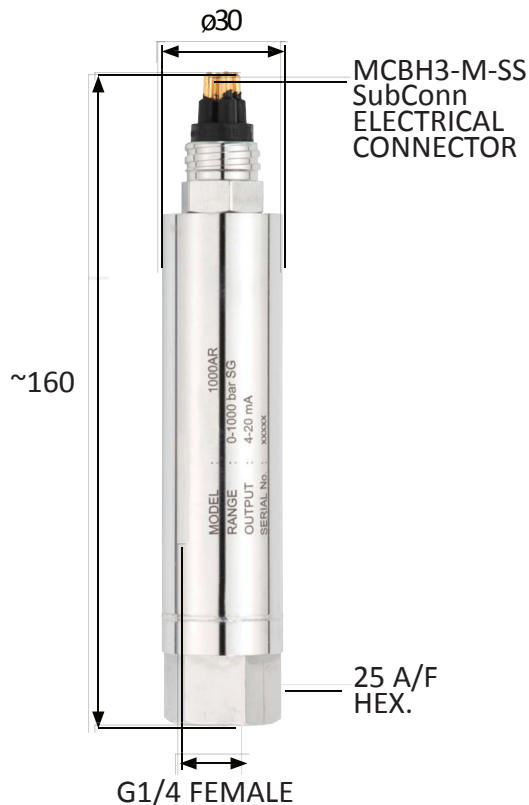
## Description

The HSPM-10 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.

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. Multiple optional connections are available... Providing a two wire output signal of 4-20 mA with high stability and repeatability for pressure ranges up to 2,000 bar. Intended for permanent immersion the product can withstand external pressures of up to 6,000 metres depth water. Secondary 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 0-1,000bar.

## Dimensions (in mm)



## Technical Data

Type:	HSPM-10
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:	Typical ranges from 0-1bar to 0-2,000 bar. Contact the sales office for further information.
Overpressure Safety:	Contact the sales office for further information.
Load Driving Capability:	4 -20 mA: $RL < [UB - 10 V] / 20 \text{ mA}$ (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1300 $\Omega$ )
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° to +40°C. Typical thermal zero and span coefficients $\pm 0.005\% \text{ FS} / ^\circ \text{ C}$ .“
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:	Ui = 28 V li = 119 mA Pi = 0.65 W Li = 0.1 $\mu\text{H}$ Ci = 74 nF Temperature Range = -20 °C to +70 °C Max. cable length =45 m
Ingress Protection:	Fully welded housing. Rated IP68 when correctly installed to conduit connection.
Electromagnetic Compatibility:	Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked
Insulation Resistance:	> 100 M $\Omega$ @ 50 VDC
Response time 10-90 %:	1 mS
Wetted Parts:	SAE 316 stainless steel housing with titanium alloy measurement cell (other materials on request)
Pressure Media:	All fluids compatible with SAE 316 stainless steel 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
Related product	PT100 temperature transducer PR3919 also available. Contact Sales for details

**DISCLAIMER :** Hydrotechnik UK operates a policy of continuous product development. We reserve the right to change specification without prior notice. All products manufactured by Hydrotechnik UK Ltd are calibrated using precision calibration equipment with traceability to international standards.