



# Genspec<sup>®</sup> GS4200H

Hydrogen Compatible Pressure Transmitter



- Compatible for use within Hydrogen based environment
- Silicon-on-Sapphire sensor technology for outstanding performance
- Tested to ISO 11114-2:2017 according to EC79/2009 and EU406/2010
- Pressure ranges to 1,500 bar
- Specialist High Strength titanium alloy sensor
- Excellent Corrosion resistance
- High resistance to overpressure and pressure transients
- ATEX/IECEx option available (includes M1 for mining applications)
- DNV-GL certification available



Vers. 28/9/Eng



## Description

The GENSPEC GS4200H pressure transmitter is designed using special titanium alloy measurement cell and wetted parts. Suitability of the material is confirmed following hydrogen compatibility testing based on ISO 11114-2:2017 according to the European Regulations EC 79/2009 and EU 406/2010.

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.

Standard accuracy is  $\pm 0.25\%$  with an over pressure limit of twice the rated pressure range, this together with easy access for re-calibration affirm the excellent design. All models are supplied with integral 1/4" BSP or alternative pressure connections. Optional higher accuracy, outputs and electrical connections are available. The all titanium alloy wetted parts offer unbeatable corrosion resistance. Versions are also available offering IP66 sealing for installations requiring high levels of environmental protection. Applications for the GS4200 include the continuous monitoring of hydraulic systems with oil, gas, water and other process liquids, industrial, medical and aerospace industries. Also ideal for the measurement and control of pressure in refrigeration, pneumatic, compressor, HVAC and engine monitoring systems.

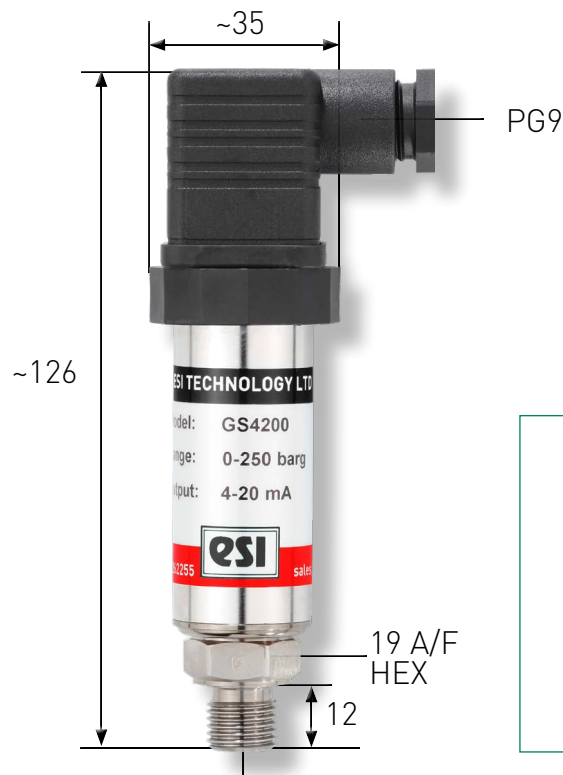
Available options include ATEX and IECEx approved version for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1) and/or Marine version complying with DNV GL rules for classification of ships, high speed & light craft and DNV GL offshore standards.

## Dimensions

(in mm)

ELECTRICAL CONNECTION (mA)	
<b>Pin No.</b>	<b>2 wire</b>
1	+supply
2	4-20mA signal
3	N/C
⏏	to case

ELECTRICAL CONNECTION (Vdc)		
<b>Pin No.</b>	<b>4 wire</b>	<b>3 wire</b>
1	-supply	common
2	+supply	+supply
3	+output	+output
⏏	-output	to case



1/4" BSP male (G1/4)\* \* Other threads available



## Technical Data

Type	GS4200	GS4201	GS4202/GS4212	GS4203/GS4213
<b>Sensor Technology:</b>	Silicon-on-Sapphire (SoS)			
<b>Output Signal:</b>	4 – 20 mA (2 wire)	0 – 10 mV/V (4 wire)	0 – 5 V (4 or 3 wire)	0 – 10 V (4 or 3 wire)
<b>Supply Voltage:</b>	10 – 36 VDC	10 VDC (5 – 15 V)	13 – 30 VDC	13 – 30 VDC
<b>Pressure Reference:</b>	Gauge			
<b>Protection of Supply Voltage:</b>	Protected against supply voltage reversal up to 50 V (amplified versions)			
<b>Standard Pressure Ranges (bar):</b>	0 – 1 bar Vac; 0 – 0.5 bar; 0 – 1 bar; 0-2.5 bar; 0-6 bar; 0 – 10 bar; 0-16 bar; 0 – 25 bar; 0 – 100 bar; 0 – 250 bar; 0-400 bar; 0 – 600 bar; 0-1,000 bar; 0 – 1,500 bar (other ranges available)			
<b>Standard Pressure Ranges (psi):</b>	0-30 in Hg; 0-7.5 psi; 0-15 psi; 0-30 psi; 0-100 psi; 0-150 psi; 0-200 psi; 0-300 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)			
<b>Overpressure Safety:</b>	4x for 0.5 bar range; 2x for ranges -1 bar to 600 bar; 1.5x for 1,000 bar range; 1.1x for 1,500 bar range			
<b>Load Driving Capability:</b>	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) 10 mV/V: n/a; 0 – 5 V: max. load $RL > 5 \text{ K}\Omega$ ; 0 – 10 V: max. load $RL > 10 \text{ K}\Omega$			
<b>Accuracy NLHR:</b>	$\leq \pm 0.25 \%$ of span BFSL (Optional higher accuracy version of $\leq \pm 0.1 \%$ of span BFSL available)			
<b>Zero Offset and Span Tolerance:</b>	$\pm 0.5 \%$ FS at room temperature (GS4201: $\pm 1 \text{ mV}$ ); $\pm 5 \%$ FS (approx.) adjustment with easy access trimming potentiometers on amplified versions only			
<b>Operating Ambient Temperature:</b>	-40 °C to +85 °C (-40 °F to +185 °F)			
<b>Operating Media Temperature:</b>	-50 °C to +125 °C (-58 °F to +257 °F)			
<b>Storage Temperature:</b>	+5 °C to +40 °C (+41 °F to +104°F) Recommended Best Practice			
<b>Temperature Effects:</b>	$\pm 1.5 \%$ FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients $\pm 0.015 \%$ FS /°C			
<b>ATEX/IECEX Approval Option (4-20 mA version only):</b>	Ex II 1 G Ex ia IIC T4 Ga (zone 0) Ex II 1 D Ex ia IICT135 °C Da (zone 20) Ex I M 1 Ex ia I Ma (group 1 M1)	n/a	n/a	n/a
<b>ATEX/IECEX Safety Values:</b>	U <sub>i</sub> = 28 V I <sub>i</sub> = 119 mA P <sub>i</sub> = 0.65 W L <sub>i</sub> = 0.1 μH C <sub>i</sub> = 74 nF Temperature Range = -20 °C to +70 °C Max. cable length = 45 m	n/a	n/a	n/a
<b>DNV GL Approval Class:</b>	Temperature: D; Humidity: B; Vibration: B; EMC: B; Enclosure: C (contact sales for more information)			
<b>Electromagnetic Compatibility:</b>	Emissions: EN61000-6-3; Immunity: EN61000-6-2; Certification: CE Marked			
<b>Insulation Resistance:</b>	> 100 MΩ @ 50 VDC			
<b>Response time 10-90 %:</b>	1 mS			
<b>Wetted Parts:</b>	Titanium alloy (1/4" BSP male (G1/4) and 1/4"NPT male thread); other options available			
<b>Pressure Media:</b>	Hydrogen and all fluids compatible with Titanium alloy (1/4" BSP male (G1/4); 1/4" NPT male; other options available)			
<b>Pressure Connection:</b>	1/2" BSP male (G1/2) 1/2" NPT male		AC AN	
<b>Electrical Connection:</b>	Mating socket EN175301-803 Form A (ex DIN43650) rated IP65 with PG9 cable entry (other options available)			
<b>Net. Weight (Kg):</b>	0.2 Kg			

## Order Matrix

Output	Wires	Type	Electrical Connection/Options	Pressure Range	Process Connection
4-20 mA	2	GS4200H			
10 mV/V	4	GS4201H			
0-5 V	4	GS4202H			
	3	GS4212H			
0-10 V	4	GS4203H			
	3	GS4213H			
Electrical Connection/Options					
DIN EN175301 plug and socket			-		
Cable outlet 1m screened			HA		
M12 connector			HB		
Cable outlet 1m screened IP67 protection			HC		
ATEX/ IECEx certified with DIN EN175301 plug and socket			EXH		
DNV GL Approval			MH		
DNV GL Approval plus ATEX/IECEx certified			EXG		
Pressure Range in bar					
0-1 bar Vac				V001	
0-0.5 bar				00.5	
0-1 bar				0001	
0- 2.5 bar				02.5	
0-6 bar				0006	
0-10 bar				0010	
0- 16 bar				0016	
0-25 bar				0025	
0-100 bar				0100	
0-250 bar				0250	
0-400 bar				0400	
0-600 bar				0600	
0-1,000 bar				1000	
0-1,500 bar				1500	
Process Connection					
1/4" BSP male (G1/4)					AB
1/4" NPT male					AM

### Order Number Example

GS4200H1500AB

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.