Hipres® HP1000H

Hydrogen Compatible High Pressure Transmitter

- Compatible for use within Hydrogen based environments
- Pressure ranges to 5,000 bar (72,500 psi)
- Tested to ISO 11114-2:2017 according to EC79/2009 and EU406/2010
- Silicon-on-Sapphire sensor technology for outstanding performance
- Pressure diaphragm and process connection is machined from one piece of special high strength Titanium alloy with no seals or welds
- High resistance to overpressure and pressure transients
- ATEX/IECEx option available (includes M1 for mining applications) for 4-20 mA versions
- DNV-GL certification available

RoHS 2011/65/EU

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Description

The HP1000 pressure transmitter is designed using a single piece of special high strength titanium alloy with no seals or welds, allowing for use with very high pressure applications. With operating ranges up to 5,000 bar the suitability of the material for use with hydrogen is confirmed following compatibility testing based on ISO 1114-2:2017 according to the European Regulations EC 79/2009 and EU 406/2010.

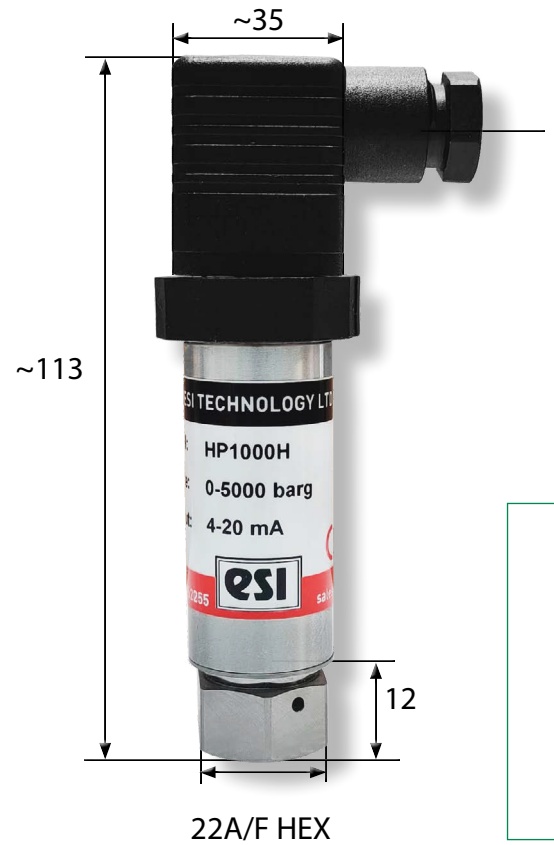
The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability over a wide temperature range. The wetted parts and pressure diaphragm are machined from a single piece of titanium alloy meaning no weld joints and therefore high pressure integrity and overload capability. All titanium pressure port offers unbeatable corrosion resistance. With a design to meet demanding environments, this transmitter will consistently maintain accurate performance while sustaining high durability. Using the industry standard autoclave process connection enables safe and reliable sealing to such high pressures. Available in pressure ranges from
0-400 bar to 0-5,000 bar and with electrical outputs of 0-100 mV, 0-5V dc, 0-10 Vdc and
4-20 mA. Applications include aerospace, laboratory and test, oil and gas monitoring equipment and general industrial.

An optional ATEX and IECEx approved version of this product is available for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).

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.

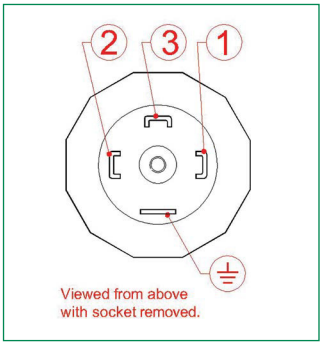
Dimensions

(in mm)



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

ELECTRICAL CONNECTION (Vdc)		
Pin No.	4 wire	3 wire
1	-supply	common
2	+supply	+supply
3	+output	+output
⏚	-output	to case
	-output	to case



Technical Data

Type	HP1000/HP110	HP1xx1	HP1xx2	HP1003/HP1103
Sensor Technology:	Silicon-on-Sapphire (SoS)			
Output Signal:	10 mV/V (4 wire)	0 – 5 V (4 or 3 wire)	0 – 10 V (4 or 3 wire)	4 – 20 mA (2 wire)
Supply Voltage:	10 VDC (5 – 15V)	13 – 30 VDC	13 – 30 VDC	10 – 36 VDC
Pressure Reference:	Gauge			
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V (amplified versions)			
Standard Pressure Ranges (bar):	HP10xx: 0 – 600 bar; 0 – 700 bar; 0 – 1,000 bar; 0 – 1,500 bar; 0-2,000 bar. HP11xx: 0 – 2,500 bar; 0 – 4,000 bar; 0 – 5,000 bar (other ranges available)			
Standard Pressure Ranges (psi):	0-10,000 psi; 0-15,000 psi; 0-20,000 psi; 0-30,000 psi; 0-40,000 psi; 0-60,000 psi; 0-72,000 psi (other ranges available)			
Overpressure Safety:	1.5x for ranges 0 – 1000 bar to 0 – 3,000 bar; 1.25x for 4,000 bar; 1.2x for 5,000 bar			
Load Driving Capability:	4 – 20 mA: RL < [UB - 10 V] / 20 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 KΩ; 0 – 10 V: max. load RL > 10 KΩ			
Accuracy NLHR:	≤ ±0.25 % of span BFSL (Optional higher accuracy version of ≤ ±0.1 % of span BFSL available)			
Zero Offset and Span Tolerance:	±0.5 %FS at room temperature (HP1000/HP1100: ±1 mV); ±5 %FS (approx.) adjustment with easy access trimming potentiometers on amplified versions only			
Operating Ambient Temperature:	-40 °C to +85 °C (-40 °F to +185 °F)			
Operating Media Temperature:	-50 °C to +125 °C (-58 °F to +257 °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 +70 °C. Typical thermal zero and span coefficients ±0.015 %FS/ °C			
ATEX/IECEx Approval Option (4-20 mA version only):	n/a	n/a	n/a	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:	n/a	n/a	n/a	Ui = 28 V Ii = 119 mA Pi = 0.65 W Li = 0.1 µH Ci = 74 nF Temperature Range = -20 °C to +70 °C Max. cable length = 45 m
DNV GL Approval Class:	Temperature: D; Humidity: B; Vibration: B; EMC: B; Enclosure: C (contact sales for more information)			
Electromagnetic Compatibility:	Emissions: EN61000-6-3; Immunity: EN61000-6-2; Certification: CE Marked			
Insulation Resistance:	> 100 MΩ @ 50 VDC			
Response time 10-90 %:	1 mS			
Wetted Parts:	Titanium alloy machined from a single piece; other options available			
Pressure Media:	Hydrogen and all fluids compatible with Titanium alloy; other options available			
Pressure Connection:	F250-C Autoclave fitting; thread type 9/16-18UNF-2B female or M16 x 1.5 female cone seal			
Electrical Connection:	Mating socket EN175301-803 Form A (ex DIN43650) rated IP65 with PG9 cable entry (other options available)			
Net. Weight (Kg):	0.2 Kg			

Order Matrix

Output	Sensor Range	Wires	Type	Electrical Connection/ Options	Pressure Range	Process Connection
10 mV/V	Model to 2,000 bar (incl. 30,000 psi)	4	HP1000H			
	Model above 2,000 bar	4	HP1100H			
0-5 V	Model to 2,000 bar (incl. 30,000 psi)	4	HP1001H			
	Model above 2,000 bar	4	HP1101H			
	Model to 2,000 bar (incl. 30,000 psi)	3	HP1011H			
	Model above 2,000 bar	3	HP1111H			
0-10 V	Model to 2,000 bar (incl. 30,000 psi)	4	HP1002H			
	Model above 2,000 bar	4	HP1102H			
	Model to 2,000 bar (incl. 30,000 psi)	3	HP1012H			
	Model above 2,000 bar	3	HP1112H			
4-20 mA	Model to 2,000 bar (incl. 30,000 psi)	2	HP1003H			
	Model above 2,000 bar	2	HP1103H			

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	
0-1000 bar (0-15,000 psi)	1000
0-1,500 bar (0-20,000 psi)	1500
0-2,000 bar (0-30,000 psi)	2000
0-3,000 bar (0-43,000 psi)	3000
0-4,000 bar (0-60,000 psi)	4000
0-5,000 bar (0-72,500 psi)	5000

Process Connection	
Autoclave F-250-C female	DE
M16 x 1.5 female cone seal	FK

Order Number Example	HP1000H1000DE

For options not listed please contact the sales team