bar

HI2000H Hispec®

Hydrogen Compatible High Precision Pressure Transducer

- Compatible for use within Hydrogen based environments
- High accuracy and performance
- Tested to ISO 11114-2:2017 according to EC79/2009 and EU406/2010
- Silicon-on-Sapphire sensor technology for outstanding performance
- Pressure ranges to 1,500 bar
- Specialist titanium alloy sensor for excellent chemical compatibility
- High thermal stability over wide operating temperature
- ATEX/IECEx option available (includes M1 for mining applications) for mV version
- TEDS Version available

RoHS 2011/65/EU

DESCRIPTION

The HI2000H high precision transducer is designed with state of the art Silicon-on-Sapphire sensor technology, offering levels of accuracy and performance previously unobtainable or prohibitively expensive. With operating ranges up to 1,500 bar the suitability of the material for use with hydrogen is confirmed following 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.

A TEDS (Transducer Electronic Data Sheet) version is available. A TEDS contains the critical information needed by an instrument or measurement system to identify, characterize, inter-

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face, and properly use the signal from an analog sensor. IEEE 1451.4 defines the method of encoding TEDS information for a broad range of senor types and applications.

Applications include aerospace, laboratory and test, oil and gas monitoring equipment (down-hole) and subsea. Available in pressure ranges from 0-500 mbar to 0-1,500 bar and with electrical outputs of 10 mV/V, 0-5 dc and 0-10 Vdc.

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 MI).

DIMENSIONS (in mm)

ELECTRICAL CONNECTION MIL-C-26482

Pin.	Designation
A	+supply
B	+output
C-	output
D-	supply
EN	/C
FN	/C

ELECTRICAL CONNECTION CABLE OUTLET

WIRE COLOUR	Designation
RED+	supply
GREEN	+output
YELLOW	-output
BLUE	-supply

	Dim. A
HI2000	80
HI2001/2	95
HI2010	80
HI2011/129	5

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TECHNICAL DATA

Type	HI2000/HI2010	HI2xx1/ HI2xx4	HI2xx2/ HI2xx5
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)
Supply Voltage:	10 VDC (5 – 15V)	13 – 30 VDC	13 – 30 VDC
Pressure Reference:	Gauge		
Protection of Supply Voltage:	n/a	Protected against supply voltage reversal up to 50 V (amplified versions)	
Standard Pressure Ranges (bar):	0 – 1 bar Vac; 0 – 1 bar; 0 – 10 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)		
Standard Pressure Ranges (psi):	0-30 in Hg; 0-15 psi; 0-150 psi; 0-300 psi; 0-1,500 psi; 0-3,000 psi; 0-6,000 psi; 0-10,000 psi; 0-15,000 psi; 0-20,000 psi (other ranges available)		
Overpressure Safety:	4x for 0.5 bar range; 2 x for ranges 1 bar to 600 bar; 1.5x for 1,000 bar range; 1.1x for 1,500 bar range		
Load Driving Capability:	10 mV/V: n/a; 0 – 5 V: max. load RL > 5 KΩ; 0 – 10 V: max. load RL > 10 KΩ		
Accuracy NLHR:	≤ ±0.1 % of span BFSL		
Zero Offset and Span Tolerance:	±0.5 %FS at room temperature (HI2000/HI2010: ±1 mV)		
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:	±1.0 %FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients ±0.005 %FS/ °C		
ATEX/IECEx Approval Option (mV/V version only):	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)	n/a	n/a
ATEX/IECEx Safety Values:	Ui = 28 V Ii = 119 mA Pi = 0.65 W Li = 0.1 µH Ci = 0 Temperature Range = -20 °C to +70 °C Max. cable length = 50 m	n/a	n/a
TEDS Version:	IEEE 1451.4 Sensor TEDS (contact sales for more information)		
Electromagnetic Compatibility:	Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked		
Insulation Resistance:	> 100 MΩ @ 50 VDC		
Response time 10-90 %:	1 mS		
Wetted Parts:	Titanium Alloy		
Pressure Media:	Hydrogen and all fluids compatible with Titanium alloy		
Pressure Connection:	¼"BSP male (G1/4) or ¼"NPT male; other options available		
Electrical Connection:	HI200x: PTFE insulated flying lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S).		
Net. Weight (Kg):	0.1 Kg		

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ORDER MATRIX

Output	Electrical Connector	Wires	Type	Options	Pressure Range	Process Connection
10 mV/V	Cable outlet 1m PTFE	4	HI2000H			
	MIL-C-26482 6 pin bayonet	4	HI2010H			
0-5 V	Cable outlet 1m PTFE	4	HI2001H			
		3	HI2004H			
	MIL-C-26482 6 pin bayonet	4	HI2011H			
		3	HI2014H			
0-10 V	Cable outlet 1m PTFE	4	HI2002H			
		3	HI2005H			
	MIL-C-26482 6 pin bayonet	4	HI2012H			
		3	HI2015H			

Electrical Connection / Options	
No special option required	-
ATEX/ IECEx certified (HI2000 & HI2010 only)	EXH (HI2000 and HI2010 only)

Pressure Range in bar	
0-1 barVac	V001
0-1 bar	0001
0-10 bar	0010
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	HI2000H0600AB

For options not listed please contact the sales team

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