



## AHI2000H

Hydrogen High Precision Pressure Transmitter

## FEATURES

- Compatible for use within Hydrogen based environments
- High accuracy performance
- Silicon-on-Sapphire sensor technology for outstanding performance
- Tested to ISO 11114-2:2017 according to EC79/2009 and EU406/2010
- Pressure ranges to 1500 bar
- High thermal stability over wide operating temperature
- ATEX/IECEx option available (includes M1 for mining applications)













Materials used in the manufacture of the Hydrogen range have been tested based on ISO 11114-2:2017 in accordance to the European Regulations EC 79/2009 and EU 406/2010 to determine an "embrittlement index" of the material when placed in a saturated environment over an extended period of time.

Results have provided a Pass rating to the compatibility of the specialist Titanium Alloy of the range against Hydrogen.

#### SPECIFICATIONS

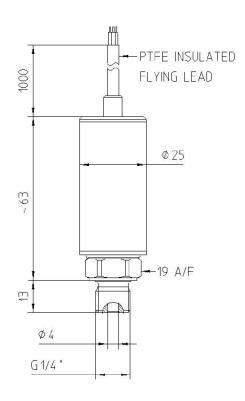
The AHI2000H series of Hydrogen compatible high precision pressure transducers with state-of-the-art SOS sensor technology offers an operating range up to 1500 bar at an accuracy rate of < ±0.1% of span. ATEX and IECEx approval and protection by intrinsic safety is optional and intended for installation and operation in zone 0, gas group IIC, temperature class T4 and zone 20 dust and M1 mining.

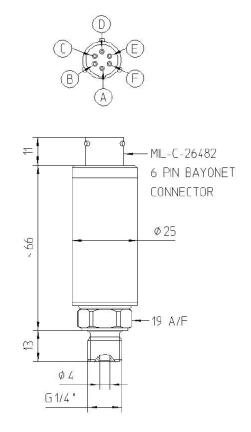
### Typical applications include:

- · Laboratory and Test
- Aerospace
- Hydrogen Applications



# DIMENSIONS (in mm)





## ELECTRICAL CONNECTIONS

Cable Outlet				
Wire Colour	Designation			
Red	+supply			
Green	+output			
Yellow	-output			
Blue	-supply			

MIL-C-26482 Outlet				
PIN	Designation			
А	+supply			
В	+output			
С	-output			
D	-supply			
Е	N/C			
F	N/C			



### HYDROGEN COMPATIBILITY AND SILICON-ON-SAPPHIRE

The hydrogen pressure transmitters are made from a special titanium alloy for the measuring cell and a titanium block for the wetted parts. The high-pressure measuring cells from 1,000 bar are manufactured seamlessly so that weak points can be avoided. This is particularly important for use with hydrogen due to the embritling properties of the medium.

The combination of titanium sensor elements with SOS sensors enables the construction of a long-term stable sensor with high accuracy. The measuring ranges for this product are up to 1,500 bar, making this transmitter the preferred choice for use on hydrogen storage tanks and pipelines, We also offer the same technology for low pressure and vacuum measurement applications.

The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability overa 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 longterm stability. With outstanding insulation properties, the sapphire substrate allows the sensor to operate over a very wide temperature range without loss of performance.

Each Hydrogen approved unit also includes a certificate of conformity verifying Hydrogen compatibility.

#### OPTIONAL APPROVALS





**Hazardous Area:** ATEX and IECEx approval for explosion protection; flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).



# TECHNICAL DATA

Dutput Signal:   10 mV/V (4 w/re)   0.5 V (4 or 3 w/re)   0.10 V (4 or 3 w/re)   Supphy Voltage:   0.10 VDC (5-15V)   13-30 VDC   13-30 VDC	Туре	AHI2000/AHI2010	AHI2xx1 / AHI2xx4	AHI2xx2 / AHI2xx5				
Supply Voltage:   0-10 VDC (5-15V)   13-30 VDC   13-	Sensor Technology:		Silicon-on-Sapphire (SOS)					
Protection of Supply volcation of Supply volca	Output Signal:	10 mV/V (4 wire)	0-5 V (4 or 3 wire)	0-10 V (4 or 3 wire)				
Protected against supply voltage reversal up to 50 V (amplified versions) voltage:  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; 0-1000 bar; 0-1500 bar (bar):  Standard Pressure Ranges [bar]:  O-30 in Hg; 0-15 psi; 0-150 psi; 0-150 psi; 0-1500 psi; 0-1000 psi; 0-1000 psi; 0-15000 psi; 0-1000 psi; 0-15000 psi; 0-1000 psi; 0-15000 psi; 0-1000 psi; 0-15000 psi;	Supply Voltage:	0-10 VDC (5-15V)	13-30 VDC	13-30 VDC				
Voltage:	Pressure Reference:	Gauge						
Content of the properature   Content of the	Protection of Supply Voltage:	n/a Protected against supply voltage reversal up to 50 V (amplified versions)						
(psi): (other ranges available)  Overpressure Safety: 4x 0.5 bar range; 2x for ranges 1 bar to 6000 bar; 1.5 for 1000 bar; 1.1x for 1500 bar range  Load Driving Capacity: 10 mV/V: n/a; 0 – 5 V: max. load RL > 10 Kill  Accuracy NLHR: 20.1 % of span BFSL  Levro Offset and Span Tolerance: 40.5 %FS at room temperature (HI2000/HI2010: ±1 mV)  Operating Temperatures: Ambient: -40 °C to +85 °C (-40 °F to +185 °F) Media: -50 °C to +125 °C (-58 °F to +257 °F)  Media: -50 °C to +125 °C (-58 °F to +257 °F)  Media: -50 °C to +125 °C (-58 °F to +257 °F)  Media: -50 °C to +104 °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 coeffents ±0.005 %FS/ °C  ATEX/IECEX Approval Detail of Ex is IIC  T4 Ga (zone 0)  Ex II 1 G Ex is IIC  T4 Ga (zone 0)  Ex II 1 D Ex is IIIG T135 °C Da (zone 20)  Ex II M 1 Ex is I Ma (group 1 M1)  Ui = 28 V  Ii = 119 mA Pi = 0.65 W Ii = 0.1 µH Ci = 74 nF Temperature Range = -20 °C to +70 °C Max. cable length = 45 m  Electromagnetic Compatibility:  Emissions: ENG1000-6-4; Immunity: ENG1000-6-2; Certification: CE Marked  Insulation Resistance:  > 100 MQ @ 50 VDC  Response Time 10-90%:  Metical Parts:  Titanium alloy  Pressure Media: Pressure Connection:  H1200x: PTFE insulated Eying lead, conductor size 7/0.1 mm. H1201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116f10-65)	Standard Pressure Ranges (bar):							
Load Driving Capacity:  10 mV/V: n/a; 0 – 5 V: max. load RL > 10 Km  Accuracy NLHR:  Reo. 1% of span BFSL  20.5 %FS at room temperature (HI2000/HI2010: ±1 mV)  Deparating Temperatures:  Ambient: -40 °C to +85 °C (-40 °F to +185 °F) Media: -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  11.0 %FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients ±0.005 %FS/ °C  Ex    1 G Ex ia    C	Standard Pressure Ranges (psi):							
Accuracy NLHR: (£0.1% of span BFSL  Zero Offset and Span folerance: £0.5%FS at room temperature (HI2000/HI2010: ±1 mV)  Deparating Temperatures: Ambient: -40 °C to +85 °C (-40 °F to +185 °F)	Overpressure Safety:	4x 0.5 bar range; 2x for ran	nges 1 bar to 600 bar; 1.5 for 1000 bar; 1.1x for	1500 bar range				
### 10.5 %FS at room temperature (Hi2000/Hi2010: ±1 mV)    Ambient: -40 °C to +85 °C (-40 °F to +185 °F)     Media: -50 °C to +125 °C (-58 °F to +257 °F)     Storage Temperature:	Load Driving Capacity:	10 mV/V: n/a; 0 -	- 5 V: max. load RL > 5 K $\bigcirc$ 0 − 10 V: max. load RL	> 10 K?				
Tolerance:  Ambient: -40 °C to +85 °C (-40 °F to +185 °F) Media: -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 %F5 total error band for -20 °C to +70 °C. Typical thermal zero and span coeëlents ±0.005 %FS/ °C  Ex    1 G Ex ia    C	Accuracy NLHR:		胜0.1 % of span BFSL					
Storage Temperature:	Zero Offset and Span Tolerance:	±0.5 %FS at room temperature (HI2000/HI2010: ±1 mV)						
### ##################################	Operating Temperatures:	·						
Ex    1 G Ex ia    IC T4 Ga (zone 0) Ex    1 D Ex ia    IC T135 °C Da (zone 20) Ex    M 1 Ex ia    Ma (group 1 M1)    Ui = 28 V	Storage Temperature:	+5 °C to +40 °	°C (+41 °F to +104°F) Recommended Best Practi	ce				
ATEX/IECEX Approval Option (4-20 mA version only):  EX   I   D   EX   I   D   EX   I   I   I   I   I   I   I   I   I	Temperature Effects:	±1.0 %FS total error band for -20	$^{\circ}\text{C}$ to +70 $^{\circ}\text{C}.$ Typical thermal zero and span coef	@ients ±0.005 %FS/ °C				
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  Electromagnetic Compatibility: Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certi@ation: CE Marked  Insulation Resistance: Response Time 10-90%: Tims Wetted Parts: Titanium alloy Pressure Media: All fluids compatible with Titanium alloy Pressure Connection:  HI200x: PTFE insulated @ying lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	ATEX/IECEx Approval Option (4-20 mA version only):	T4 Ga (zone 0) Ex II 1 D Ex ia IIIC T135 °C Da (zone 20)	n/a	n/a				
Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certigation: CE Marked  Insulation Resistance: > 100 MΩ @ 50 VDC  Response Time 10-90%: 1 mS  Wetted Parts: Titanium alloy  Pressure Media: All fluids compatible with Titanium alloy  Pressure Connection: 1/4" BSP male (G1/4) or 1/4" NPT male (others options available)  Electrical Connection: HI200x: PTFE insulated Bying lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	ATEX/IECEx Safety Values:	Ii = 119 mA Pi = 0.65 W Li = 0.1 μH Ci = 74 nF Temperature Range = -20 °C to +70 °C	n/a	n/a				
Response Time 10-90%:  Wetted Parts:  Titanium alloy  Pressure Media:  All fluids compatible with Titanium alloy  1/4" BSP male (G1/4) or 1/4" NPT male (others options available)  Flectrical Connection:  HI200x: PTFE insulated Bying lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	Electromagnetic Compatibility:	Emissions: EN61000	Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certi@ation: CE Marked					
Wetted Parts:  Pressure Media:  All fluids compatible with Titanium alloy  1/4" BSP male (G1/4) or 1/4" NPT male (others options available)  HI200x: PTFE insulated ging lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	Insulation Resistance:		> 100 MΩ @ 50 VDC					
Pressure Media:  All fluids compatible with Titanium alloy  1/4" BSP male (G1/4) or 1/4" NPT male (others options available)  Electrical Connection:  HI200x: PTFE insulated ging lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	Response Time 10-90%:		1 mS					
Pressure Connection: 1/4" BSP male (G1/4) or 1/4" NPT male (others options available)  Electrical Connection: HI200x: PTFE insulated Bying lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	Wetted Parts:		Titanium alloy					
Electrical Connection:  HI200x: PTFE insulated lying lead, conductor size 7/0.1 mm. HI201x: MIL-C-26482 6 pin bayonet connector (Accessory not included: mating connector type MS3116F10-6S)	Pressure Media:	Al	l fluids compatible with Titanium alloy					
(Accessory not included: mating connector type MS3116F10-6S)	Pressure Connection:	1/4" BSP male	(G1/4) or $1/4"$ NPT male (others options availa	ble)				
Net Weight: 0.2 Kg	Electrical Connection:							
	Net Weight:		0.2 Kg					

Version L06 2024



### ORDER MATRIX

	Electrical Connection	Wires	Туре	Options	Pressure Range	Process Connection
10 mV/V	Cable outlet 1m PTFE	4	AHI2000			
	MIL-C-26482 6 pin bayonet	4	AHI2010			
0-5 V	Cable outlet 1m PTFE	4	AHI2001			
	Cable outlet Im PIFE	3	AHI2004			
	MIL C 2C492 C nin havenat	4	AHI2011			
	MIL-C-26482 6 pin bayonet	3	AHI2014			
	Cable outlet 1m PTFE	4	AHI2002			
0-10 V	Cable oddlet IIII FIFE	3	AHI2005			
0-10 (	MIL-C-26482 6 pin bayonet	4	AHI2012			
	Wile-e-20482 o pin bayonet	3	AHI2015			
				_		
Options						
lo special options req	uired HI2000 & HI2010 only)			H EXH		
ressure Range -1 bar Vac						
O-1 bar					V001	
n-T ngi					V001 0001	
)-10 bar					0001	
0-10 bar 0-25 bar 0-100 bar					0001 0010	
0-10 bar 0-25 bar 0-100 bar					0001 0010 0025	
0-10 bar 0-25 bar 0-100 bar 0-250 bar					0001 0010 0025 0100	
0-10 bar 0-25 bar 0-100 bar 0-250 bar 0-400 bar 0-600 bar					0001 0010 0025 0100 0250	
0-10 bar 0-25 bar 0-100 bar 0-250 bar 0-400 bar 0-600 bar					0001 0010 0025 0100 0250 0400	
0-10 bar 0-25 bar 0-100 bar 0-250 bar 0-400 bar 0-600 bar 0-1000 bar					0001 0010 0025 0100 0250 0400 0600	
D-1 par D-10 bar D-25 bar D-100 bar D-250 bar D-400 bar D-1000 bar D-1500 bar					0001 0010 0025 0100 0250 0400 0600 1000	
0-10 bar 0-25 bar 0-100 bar 0-250 bar 0-400 bar 0-600 bar 0-1500 bar 0-1500 bar					0001 0010 0025 0100 0250 0400 0600 1000	АВ
0-10 bar 0-25 bar 0-100 bar 0-250 bar 0-400 bar 0-600 bar 0-1000 bar					0001 0010 0025 0100 0250 0400 0600 1000	AB AM

Order Number Example

For options not listed please contact the sales team

**DISCLAIMER:** We reserve the right to change specifications without prior notice. specifications without prior notice. All manufactured products are calibrated with precision calibration equipment that is traceable to national measurement standards.

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