



- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-500mbar TO 0-1500bar
- SUPERB THERMAL PERFORMANCE
- HIGH OPERATING TEMPERATURE
- 0-100mV, 0-5Vdc or 0-10Vdc OUTPUT
- EXCELLENT ACCURACY
- OUTSTANDING LONG TERM STABILITY
- ALL TITANIUM ALLOY WETTED PARTS
- INTRINSICALLY SAFE OPTION

The HISPEC HI2000 series of pressure transducers with state-of-the-art Silicon-on-Sapphire sensor technology offer levels of accuracy and performance previously unobtainable or prohibitively expensive.

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 completed sensor exhibits virtually no hysteresis and excellent long-term stability. With outstanding insulation properties, the sapphire substrate protects the strain gauge circuit from electromagnetic pulse radiation and allows the sensor to operate over a very wide temperature range without loss of performance.

Applications include aerospace, laboratory and test, oil and gas monitoring equipment (down-hole) and subsea. Available immediately in pressure ranges from 0-0.5 bar to 0-1500 bar and with electrical outputs of 0-100mVdc, 0-5Vdc and 0-10Vdc.

An optional ATEX certified version of this product is available approved to II 1 GD EEx ia IIC T4 (zone 0) and Ex iaD 20 T200°C (zone 20) TA = -20 to +70°C. This option has the following safety values; Ui=28V, li=93mA, Pi=0.65W, Li=0, Ci=0nF.



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**ellison sensors international**

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### SPECIFICATION

#### PRESSURE RANGES:

0-1bar Vac through to 1500bar, see table below for list of all standard pressure ranges

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges 1bar-600bar

1.5x for 1000bar

1.1x for 1500bar

#### OUTPUT SIGNAL:

**0-10mV/V [nominal] (4 wire non-amplified)**

Zero offset:  $\pm 1\text{mV/V}$ ,

Span tolerance:  $\pm 30\%$ FS

**0-5 Vdc, 0-10 Vdc (4 wire amplified)**

Zero Offset and Span Setting  $\pm 0.2\%$ FS

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

5-15Vdc for 0-10mV/Vdc version

13-30Vdc for 0-5Vdc and 0-10Vdc versions

#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc (amplified versions)

#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

$\pm 0.25\%$  FS Best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS Defined as maximum error between three consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with titanium alloy.

#### OPERATING TEMPERATURE RANGE:

Ambient:  $-40^\circ\text{C}$  to  $+125^\circ\text{C}$

Media:  $-50^\circ\text{C}$  to  $+125^\circ\text{C}$

Storage:  $5^\circ\text{C}$  to  $+40^\circ\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 0.5\%$ FS total error band for  $-20^\circ\text{C}$  to  $70^\circ\text{C}$

Typical thermal zero and span coefficients

$\pm 0.005\%$ FS/ $^\circ\text{C}$

#### INSULATION RESISTANCE:

100Mohm @50Vdc all electrical connection to case

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### VIBRATION:

$\pm 0.05\%$ FS/g with 30g peak, 10Hz -2KHz, 12mm double amplitude

#### MECHANICAL SHOCK:

3x4ft drop on to concrete floor will not degrade performance

#### PRESSURE CONNECTION:

1/4" BSP or 1/4"NPT Male (others on request)

#### ELECTRICAL CONNECTION:

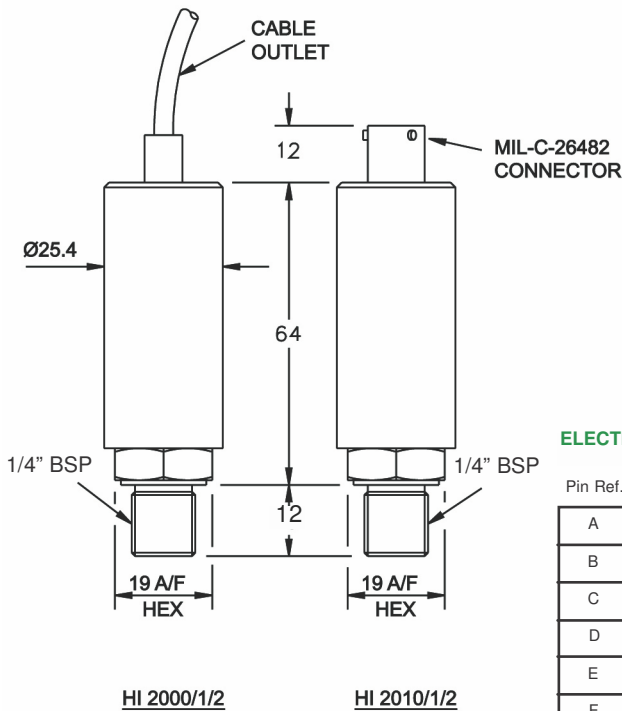
**HI200x:** PTFE insulated flying lead, conductor size 7/0.16mm<sup>2</sup>

**HI201x:** MIL-C-26482 (6 pin bayonet connector), mates with MS3111-10-6S.

#### WEIGHT:

85grams excluding mating connector and flying lead.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin Ref.	Colour	Designation
A	Red	+ supply
B	Green	+ output
C	Yellow	- output
D	Blue	- supply
E		n/c
F		n/c

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. HI2010 0-6bar

Model No.	OUTPUT
HI2000	0-10mV/Vdc
HI2001	0-5Vdc
HI2002	0-10Vdc
HI2010	0-10mV/Vdc
HI2011	0-5Vdc
HI2012	0-10Vdc

#### PRESSURE RANGES

0-1bar Vac	0-40bar
0-500mbar	0-60bar
0-1bar	0-100bar
0-1.6bar	0-160bar
0-2.5bar	0-250bar
0-4bar	0-400bar
0-6bar	0-600bar
0-10bar	0-1000bar
0-16bar	0-1500bar
0-25bar	

#### CALIBRATION

All products manufactured by Ellison Sensors are calibrated using precision calibration equipment with traceability to international standards.

Ellison Sensors operates a policy of continuous product development. We reserve the right to change specification without prior notice.

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