



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

DESCRIPTION

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 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.

With all titanium alloy wetted parts and a stainless steel housing the HISPEC is designed to operate in demanding environments, while maintaining accurate performance and extremely good durability. Applications include aerospace, laboratory and test, oil and gas monitoring equipment (down-hole) and sub-sea.

Available immediately in pressure ranges from 0-0.5 bar to 0-1500 bar and with electrical outputs of 0-100mV, 0-5 Vdc and 0-10Vdc.

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SPECIFICATION

PRESSURE RANGES:

0 to 1bar Vac through to 1500 barG, 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 to 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/V version

13-30Vdc for 0-5V and 0-10V 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 3 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° to $+125^\circ$

Media: -50° to $+125^\circ\text{C}$

Storage: 5° to $+40^\circ\text{C}$

TEMPERATURE EFFECTS:

$\pm 0.5\%$ FS total error band for -20° to 70°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:

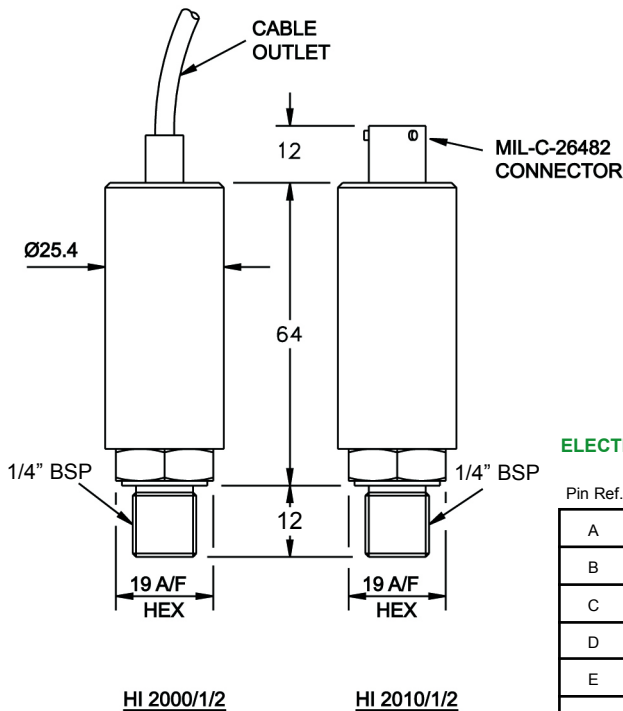
HI200x: PTFE insulated flying lead, conductor size 7/0.16mm²

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

WEIGHT:

85 grams 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 0-6barg

Model No.	DESCRIPTION
HI2000	0-10mV/V, 4 WIRE
HI2001	0-5V, 4 WIRE
HI2002	0-10V, 4 WIRE
HI2010	0-10mV/V, 4 WIRE
HI2011	0-5V, 4 WIRE
HI2012	0-10V, 4 WIRE

PRESSURE RANGES

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

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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