Hispec® HI2000

HIGH SPECIFICATION PRESSURE TRANSDUCER

- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-500mbar TO 0-1500bar
- VOLTAGE OUTPUT
- ACCURACY 0.1% NLHR
- OPTIONAL ATEX APPROVED VERSION
- ALL TITANIUM ALLOY WETTED PARTS
- HIGH SPECIFICATION

DESCRIPTION

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 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 in pressure ranges from 0-500mbar to 0-1500bar and with electrical outputs of 10mV/V, 0-5Vdc and 0-10Vdc.

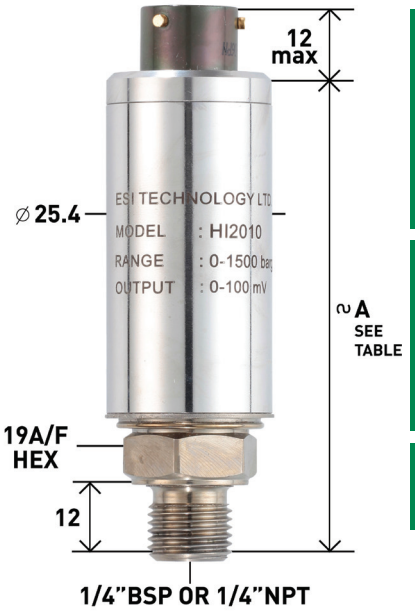
An optional ATEX certified version of this product is available approved for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).

PRESSURE RANGES

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

Range (bar)	Order Code	Range (bar)	Order Code
0-1 Vac	V001	0-40	0040
0-0.5	00.5	0-60	0060
0-1	0001	0-100	0100
0-1.6	01.6	0-160	0160
0-2.5	02.5	0-250	0250
0-4	0004	0-400	0400
0-6	0006	0-600	0600
0-10	0010	0-700	0700
0-16	0016	0-1000	1000
0-25	0025	0-1500	1500

DIMENSIONS (in mm)



ELECTRICAL CONNECTION
MIL-C-26482

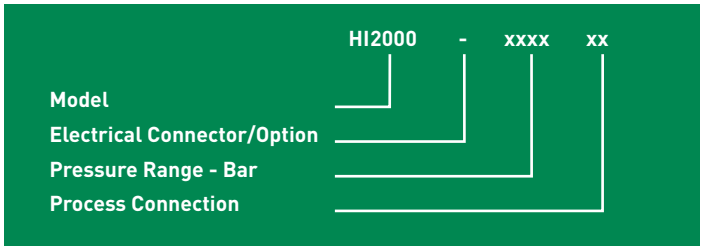
Pin	Designation
A	+supply
B	+output
C	-output
D	-supply
E	N/C
F	N/C

ELECTRICAL CONNECTION
CABLE OUTLET

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

	Dim. A
HI2x00	80
HI2x01/2	95

ORDERING INFORMATION



OUTPUT	Model No.
10mV/V	H2000 / HI2010
0-5Vdc	H2001 / HI2011
0-10Vdc	H2002 / HI2012
ELECTRICAL CONNECTION/OPTION	**Order Code**
Cable Outlet 1m PTFE (models HI2000 HI2001 HI2002)	-
MIL-C-26482 6 pin bayonet (models HI2010 HI2011 HI2012)	-
ATEX certified	EX
PROCESS CONNECTION	**Order Code**
1/4" BSP male thread	AB
1/4" NPT male thread	AM
EXAMPLE	**Order Code**
Output Signal 10mV/V	HI2010
MIL-C-26482 6 pin bayonet connector	-
Pressure range 0-25barg	0025
Pressure connection 1/4" BSP male	AB
Correct Part Number	HI2010-0025AB

For options not listed contact sales team

SPECIFICATION

PRESSURE REFERENCE

Gauge

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above ±0.5%FS.
2x for ranges -1bar to 600bar
1.5x for 1000bar
1.1x for 1500bar

OUTPUT SIGNAL

10mV/V (4 wire non-amplified) Zero offset: ±1mV, Span tolerance: ±1%FS
0-5Vdc, 0-10Vdc (4 wire amplified) Zero Offset and Span Tolerance ±0.2%FS

SUPPLY VOLTAGE

Measured across supply terminals on connector plug
5-15Vdc for 10mV/V version
13-30Vdc for 0-5Vdc and 0-10Vdc versions

PROTECTION OF SUPPLY VOLTAGE

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

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

±0.1% FS Typical Max, Best fit straight line.

PRESSURE MEDIA

All fluids compatible with titanium alloy.

OPERATING TEMPERATURE RANGE

Ambient: -40°C to +125°C
Media: -50°C to +125°C
Storage: +5°C to + 40°C

TEMPERATURE EFFECTS

±1.0%FS TEB -20°C to +70°C
Typical thermal zero and span coefficients ±0.005%FS/°C.

ATEX APPROVAL

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 I M1)

ATEX SAFETY VALUES

Ui = 28V
Ii = 119mA
Pi = 0.65W
Li = 0.1
Ci = 0
Temperature range = -20°C to +70°C
Max. cable length = 50m

INSULATION RESISTANCE

100Mohm @50Vdc all electrical connection to case

VIBRATION

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 7/0.1mm
HI201x: MIL-C-26482 (6 pin bayonet connector). Mating connector available (ESI part no. EC-MIL-10-6S)

Hispec® HI2200/2300

HIGH TEMPERATURE PRESSURE TRANSDUCER

- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-1bar TO 0-1500bar
- 10mV/V TYPICAL OUTPUT
- ACCURACY 0.1% NLHR
- HIGH OPERATING AMBIENT & MEDIA TEMPERATURE UP TO 200°C
- ALL TITANIUM ALLOY WETTED PARTS
- CABLE OUTLET OR MIL-C-26482 ELECTRICAL CONNECTOR

DESCRIPTION

HISPEC - HI2200/2300 series of high temperature pressure transducers with state-of-the-art Silicon-on-Sapphire sensor technology offer levels of accuracy and performance previously unobtainable or prohibitively expensive. It is capable of operating at constant 200°C both media and ambient.

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 and allows the sensor to operate over a very wide temperature range without loss of performance.

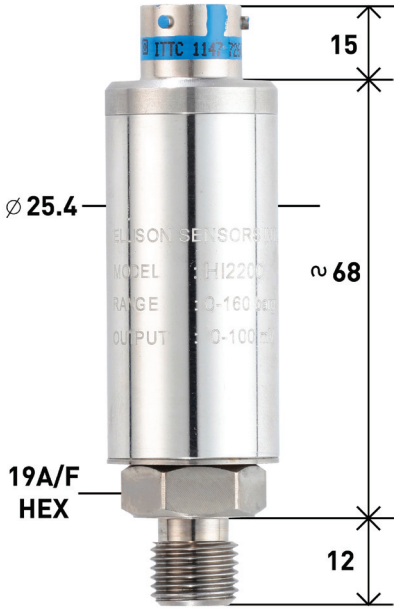
With pressure ranges from 0-1bar to 0-1500bar, the high temperature HISPEC transducer is available in two options; model HI2200 offers a non-compensated and un-rationalised signal output of between 10mV/V and 20mV/V, whilst model HI2300 is fully temperature compensated with a rationalised 10mV/V signal output. All models are available with either PTFE cable outlet or military bayonet style plug to MIL-C-26482, both of which are rated for use at 200°C. This means that not only does the transducer perform effectively at high media temperatures but uniquely can be used in environments where there are elevated ambient temperatures of up to 200°C. For instance this device may be mounted inside an oven or thermal chamber.

PRESSURE RANGES

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

Range (bar)	Order Code	Range (bar)	Order Code
0-1	0001	0-60	0060
0-1.6	01.6	0-100	0100
0-2.5	02.5	0-160	0160
0-4	0004	0-250	0250
0-6	0006	0-400	0400
0-10	0010	0-600	0600
0-16	0016	0-700	0700
0-25	0025	0-1000	1000
0-40	0040	0-1500	1500

DIMENSIONS (in mm)



ELECTRICAL CONNECTION
MIL-C-26482

Pin	Designation
A	+supply
B	+output
C	-output
D	-supply
E	N/C
F	N/C

ELECTRICAL CONNECTION
CABLE OUTLET

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

ORDERING INFORMATION

HI2200 - xxxx xx

- Model
- Electrical Connector/Option
- Pressure Range - Bar
- Process Connection

Output	Model No.
10-20mV/V Un-rationalised and un-compensated	H2200 or HI2210
10mV/V Rationalised and compensated	H2300 or HI2310
Electrical Connection / Option	**Order Code**
Cable Outlet 1m PTFE (models HI2200 & HI2300)	-
MIL-C-26482 6 pin bayonet (models HI2210 & HI2310)	-
Process Connection	**Order Code**
1/4" BSP male thread	AB
1/4" NPT male thread	AM
EXAMPLE	**Order Code**
Output Signal 10mV/V rationalised and compensated	HI2310
MIL-C-26482 6 pin bayonet connector	-
Pressure range 0-25barg	0025
Pressure connection 1/4" BSP male	AB
Correct Part Number	HI2310-0025AB

For options not listed contact sales team

SPECIFICATION

PRESSURE REFERENCE

Gauge

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above ±0.5%FS.
2x for ranges -1bar to 600bar
1.5x for 1000bar
1.1x for 1500bar

OUTPUT SIGNAL

HI22x0: un-rationalised mV output
Zero offset: ±1mV/Vdc,
Span tolerance: 10-20mV/V
HI23x0: 10mV/V (temperature compensated)
Zero offset: ±1mV
Span tolerance: ±1%FS

SUPPLY VOLTAGE

10Vdc nominal, 5-15Vdc

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

±0.1% FS Typical max. Best fit straight line.

PRESSURE MEDIA

All fluids compatible with titanium alloy.

OPERATING TEMPERATURE RANGE

Ambient: -40°C to +200°C
Media: -50°C to +200°C
Storage: +5° to +40°C

TEMPERATURE EFFECTS

HI22x0 typical thermal zero and span coefficients compensated ±0.05%FS/°C.
HI23x0 ±2.0%FS TEB -40°C to +150°C, typical thermal zero and span coefficients ±0.005%FS/°C.

INSULATION RESISTANCE

100Mohm @50Vdc all electrical connection to case

VIBRATION

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

HI2x00: PTFE insulated flying lead, conductor size 7/0.16mm2
HI2x10: MIL-C-26482 high temperature 6 pin bayonet connector