



Hipres® HP1000/HP1100

HIGH PRESSURE TRANSDUCER



- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-400bar TO 0-4000bar
- OUTPUTS AVAILABLE 0-100mV, 0-5Vdc, 0-10Vdc or 4-20mA
- ACCURACY 0.25% NLHR
- OPTIONAL ATEX APPROVED VERSION (4-20mA ONLY)
- INDUSTRY STANDARD HIGH PRESSURE FITTING
- ALL TITANIUM WETTED PARTS
- HIGH OPERATING TEMPERATURE

DESCRIPTION

The HP1000 series extends the Silicon-on-Sapphire pressure sensor technology into very high pressure applications, with operating ranges up to 4000bar and still maintaining an extremely high performance level.

The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability over a wide temperature range. The wetted parts and pressure diaphragm are machined from a single piece of titanium alloy meaning no weld joints and therefore high pressure integrity and overload capability. All titanium pressure port offers unbeatable corrosion resistance. With a design to meet demanding environments, this transducer will consistently maintain accurate performance while sustaining high durability. Using the industry standard autoclave process connection enables safe and reliable sealing to such high pressures. Available in pressure ranges from 0-400bar to 0-4000bar and with electrical outputs of 0-100mV, 0-5Vdc, 0-10Vdc and 4-20mA. Applications include aerospace, laboratory and test, oil and gas monitoring equipment and general industrial.

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 MI).



PRESSURE RANGES

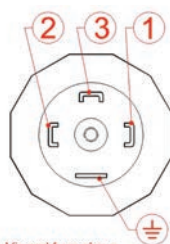
0 to 400bar through to 0 to 4000bar, see table below for list of all standard pressure ranges.

Range (bar)	Order Code	Range (bar)	Order Code
0-400	0400	0-2000	2000
0-600	0600	0-2500*	2500
0-700	0700	0-3000*	3000
0-1000	1000	0-4000*	4000
0-1500	1500	*HP1100 ranges	

DIMENSIONS (in mm)



ELECTRICAL CONNECTION (mA)	
Pin No.	
1	2 wire +supply
2	4-20mA signal
3	not fitted to case
⊥	



ELECTRICAL CONNECTION (Vdc)		
Pin No.	4 wire	3 wire
1	-supply	common
2	+supply	+supply
3	+output	+output
⊥	-output	to case

ORDERING INFORMATION

Model	HP1000	-	xxxx	xx
Electrical Connector/Option				
Pressure Range - Bar				
Process Connection				

OUTPUT	Model to 2000 bar	Model above 2000bar
0-100mV	HP1000	HP1100
0-5Vdc	HP1001	HP1101
0-10Vdc	HP1002	HP1102
4-20mA	HP1003	HP1103

ELECTRICAL CONNECTION/OPTION

DIN 43650 plug and socket
Cable outlet 1 metre screened
ATEX certified with DIN43650 plug and socket

Order Code

-
A
EX

PROCESS CONNECTION

Autoclave F-250-C female

Order Code

DE

EXAMPLE

Output signal 4-20mA
ATEX certified with DIN43650 plug and socket
Pressure range 0-4000barg
Autoclave F-250-C female

Order Code

HP1103
EX
4000
AB

Correct Part Number

For options not listed contact sales team

HP1103EX4000DE

SPECIFICATION

PRESSURE REFERENCE

Gauge

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above $\pm 0.5\%$ FS.
1.5x for ranges 0-1500bar to 0-3000bar
1.25x 4000bar

OUTPUT SIGNAL

4-20 mA (2 wire configuration) as standard.
Optional outputs available are;
0-5Vdc (3 or 4 wire)
0-10Vdc (3 or 4 wire)
0-100mV (4 wire)

ZERO OFFSET AND SPAN TOLERANCE

± 0.08 mA
 $\pm 5\%$ FS adjustment with easy access trimming Potentiometers on amplified version only

INSTALLATION TORQUE

35Nm maximum. This will cause a zero shift less than 1% FS

SUPPLY VOLTAGE

Measured across supply connector plug
10Vdc for 0-100mV version
13-30Vdc for 0-5Vdc and 0-10Vdc versions
10-36Vdc for 4-20mA version

PROTECTION OF SUPPLY VOLTAGE

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

LOAD DRIVING CAPABILITY (4-20mA version only)

Calculate maximum load $R_s = (U_b - 10V) / 20mA$
e.g. with supply voltage load of 36Vdc, maximum load is 1300ohms.

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

$\pm 0.25\%$ FS Typical max. Best fit straight line.

PRESSURE MEDIA

All fluids compatible with titanium alloy.

OPERATING TEMPERATURE RANGE

Ambient: -40°C to +85°C
Media: -50°C to +125°C
Storage: +5°C to +40°C

TEMPERATURE EFFECTS

$\pm 1.5\%$ FS total error band for -20°C to +70°C Typical thermal zero and span coefficients $\pm 0.02\%$ FS/°C

ATEX APPROVAL (4-20mA 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 I M1)

ATEX SAFETY VALUES

$U_i = 28V$
 $I_i = 119mA$
 $P_i = 0.65W$
 $L_i = 0.1$
 $C_i = 74nF$
Temperature range = -20°C to +70°C
Max. cable length = 45m

INSULATION RESISTANCE

100Mohm @50Vdc all electrical connection to case

PRESSURE CONNECTION

F250-C Autoclave fitting.
Thread type 9/16-18UNF-2B (female)

ELECTRICAL CONNECTION

Mating socket with screw terminal connections to DIN 43650, rated IP65.

DISCLAIMER : ESI Technology Ltd operates a policy of continuous product development. We reserve the right to change specification without prior notice. All products manufactured by ESI Technology Ltd are calibrated using precision calibration equipment with traceability to international standards.

