HIPRES© HP1000

High Pressure Transmitter

- Silicon-on-Sapphire sensor technology for outstanding performance
- Pressure ranges to 5,000 bar
- Pressure diaphragm and process connection is machined from one piece of Titanium with no seals or welds
- High resistance to overpressure and pressure transients
- ATEX/IECEx option available (includes M1 for mining applications) for 4-20 mA versions
- DNV certification available

RoHS 2011/65/EU

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 long-

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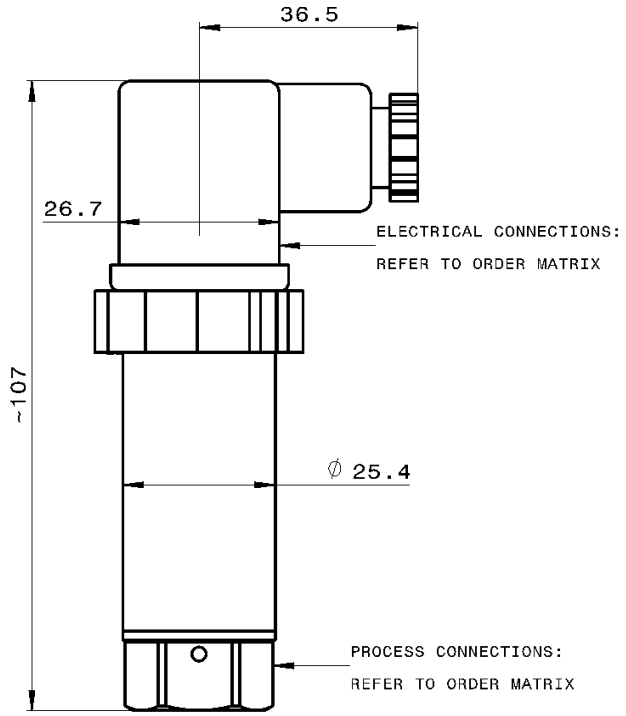
Specifications

The HIPRES HP1000 series of high pressure transmitters with state-of-the-art SOS sensor technology offers high performance pressure measurement in extremely high pressure applications up to 5,000 bar ranges.

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. DNV rules for classification of ships, high speed & light craft and DNV offshore standards.

Typical applications include:
- Oil and Gas monitoring
- Aerospace
- High pressure Industrial

Dimensions (in mm)



Electrical Connections

	DIN Connection		
	mA	VDC	
Pin No.	2 wire	3 wire	4 wire
1	+supply	common	-supply
2	4-20mA	+supply	+supply
3	N/C	+output	+output
⏚	to case	to case	-output

	M12 Connection		
	mA	VDC	
Pin No.	2 pin	3 pin	4 pin
1	+supply	-supply	-supply
2	N/C	+supply	+supply
3	4-20mA	+output	+output
4	N/C	N/C	-output

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Technical Data

Type	HP1000/HP1100	HP1xx1	HP1xx2	HP1003/HP1103	HP1003/ HP1103
Sensor Technology:	Silicon-on-Sapphire (SOS)				
Output Signal:	10 mV/V Typical (4 wire)	0-5 V (4 or 3 wire)	0-10 V (4 or 3 wire)	4-20 mA (2 wire)	4-20 mA (2 wire)
Supply Voltage:	10 VDC (5-15 V)	13-30 VDC	13-30 VDC	10-36 VDC	10-36 VDC
Pressure Reference:	Gauge				
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V (amplified versions)				
Standard Pressure Ranges (bar):	HP10xx: 0-600 bar; 0-700 bar; 0-1000 bar; 0-1500 bar; 0-2000 bar HP11xx: 0 – 2500 bar; 0 – 4000 bar; 0 – 5000 bar (other ranges available)				
Standard Pressure Ranges (psi):	0-10000 psi; 0-15000 psi; 0-20000 psi; 0-30000 psi; 0-40000 psi; 0-60000 psi; 0-72000 psi (other ranges available)				
Overpressure Safety:	1.5x for ranges 0 – 1000 bar to 0 – 3000 bar; 1.25x for 4000 bar; 1.2x for 5000 bar				
Load Driving Capacity:	**4 – 20 mA:** RL < [UB - 10 V] / 20 mA (e.g. with supply voltage (UB) of 36 V, max. load (RL) is 1300 Ω) **10 mV/V:** n/a; **0 – 5 V:** max. load RL > 5 KΩ; **0 – 10 V:** max. load RL > 10 KΩ				
Accuracy NLHR:	≤ ±0.25 % of span BFSL (Ranges above 3000 bar: ≤ ±0.35 % of span BFSL)				
Zero Offset and Span Tolerance:	±0.5 %FS at room temperature (HP1000: ±1 mV); ±5 %FS (approx.) adjustment with easy access trimming potentiometers on amplified versions only				
Operating 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				
Temperature Effects:	±1.5 %FS total error band for -20 °C to +70 °C. Typical thermal zero and span coefficients ±0.015 %FS /°C				
ATEX/IECEx Approval Option (4-20 mA version only):	n/a			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 1 M1)	
ATEX/IECEx Safety Values:	n/a			Ui = 28 V 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	
DNV Approval:	Temperature: D; Humidity: B; Vibration: B; EMC: B; Enclosure: C (contact sales for more information)				
Electromagnetic Compatibility:	Emissions: BS EN61000-6-3; Immunity: BS EN61000-6-2; Certification: CE/UKCA Marked				
Insulation Resistance:	> 100 MΩ @ 50 VDC				
Response Time 10-90%:	1 mS				
Wetted Parts:	Titanium alloy machined from a single piece (other options available)				
Pressure Media:	All fluids compatible with Titanium alloy (other options available)				
Pressure Connection:	F250-C Autoclave fitting; thread type 9/16-18UNF-2B female or M16 x 1.5 female cone seal				
Electrical Connection:	Mating socket EN175301-803 Form A (ex DIN43650) IP65 with PG9 cable entry (other options available)				
Net Weight:	0.2 Kg				

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Order Matrix

Output		Wires	Type	Options	Pressure Range	Process Connection	Other Options
10 mV/V	Model up to 2,000 bar (incl. 30,000 psi)	4	HP1000				
	Model above 2,000 bar	4	HP1100				
0-5 V	Model up to 2,000 bar (incl. 30,000 psi)	4	HP1001				
	Model above 2,000 bar	4	HP1101				
	Model up to 2,000 bar (incl. 30,000 psi)	3	HP1011				
	Model above 2,000 bar	3	HP1111				
0-10 V	Model up to 2,000 bar (incl. 30,000 psi)	4	HP1002				
	Model above 2,000 bar	4	HP1102				
	Model up to 2,000 bar (incl. 30,000 psi)	3	HP1012				
	Model above 2,000 bar	3	HP1112				
4-20 mA	Model up to 2,000 bar (incl. 30,000 psi)	2	HP1003				
	Model above 2,000 bar	2	HP1103				

Options	
DIN EN175301 plug and socket (IP65)	-
Cable outlet 1m screened (IP65)	A
M12 connector (IP67 when mated with equivalent connector)	B
Cable outlet 1m screened IP67 protection	C
ATEX/IECEx certified with DIN EN175301 plus and socket	EX
DNV approval	M
DNV approval plus ATEX/IECEx certified	EXM

Pressure Range	
0-600 bar	0600
0-1000 bar	1000
0-1500 bar	1500
0-2000 bar	2000
0-3000 bar	3000
0-4000 bar	4000
0-5000 bar	5000

Process Connection	
Autoclave F-250-C female	DE
M16 x 1.5 female cone seal	FK

Other Options	
ATEX/IECEx certified with M12 connector	-M12

Order Number Example	HP1100A1000DE	

For options not listed please contact the sales team

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, traceable to national measurement standards.

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