



EXPLOSION-PROOF

High Accuracy 0.1% Pressure Transducer AST46HA

Overview

Applying digital compensation, the AST46HA offers top performance over a wide temperature range. Where other sensor technologies will freeze or boil, the AST46HA uses a one piece stainless steel sensor to offer continuous operation.

Factory Sealed Gauge Pressure Transducer

- Pressures from 100 to 20,000 PSI
- CSA approved for use in hazardous areas including:
 - ✓ UL1203/FM3615 Class I Zone 1 Group IIC
 - ✓ Class I Div 1 Groups A, B, C, D Explosionproof
 - ✓ Class II Div 1 Groups E, F, G Dust Ignition-proof

Vented Gauge Pressure Transducer

- Pressures from 1 to 1,000 PSI Gauge
- CSA approved for use in hazardous areas including:
 - ✓ Class I Zone 1 Group IIC
 - ✓ Class I Div 1 Groups A, B, C, D Explosionproof

Benefits

- ATEX / IECEx: Class I, Zone 1, Ex d IIC T5 Gb (Ta = -40°C to 85°C)
- ANSI/ISA-12.27.01.2003 Certified "Single Seal" (no secondary seal required)
- ABS (American Bureau of Shipping) Approved
- ASIC Compensation
- Superb Temperature Performance | Wide Operating Temperature
- Excellent Accuracy
- High Proof and Burst Pressure
- Exotic Alloys Available (Hastelloy, Inconel)

Applications

- Well Optimization
- Oil and Gas Pipelines
- Drilling Platforms
- Marine & Offshore
- CNG / Hydrogen Fill Stations
- Paint Booths
- Remote Telemetry Unit
- Cold Climate Drilling & Mining
- Panel Instrumentation

Environmental Data

Ambient Temperature: 25°C (77°F) (Unless otherwise specified)

Operating Ambient	-40 to 85°C (-40 to 185°F)
Operating Media	-40 to 125°C (-40 to 257°F)
Storage	-40 to 100°C (-40 to 212°F)

Shock, Vibration & Ingress Protection (IP)

Standard	Description	Test Value
EN 60067-2-27	Shock Test	500m/s ² , 6ms, half sine-wave, 6 shocks (3/direction), horizontal and vertical axis, 12 total shocks
EN 60068-2-6	Sinusoidal Vibration	5-25 Hz, 2mm, 25-150 Hz, 50m/s, Sweep rate: 1 octave/min, Duration: 24 hours/axis (48 hours total), horizontal and vertical axis
EN 60068-2-64	Random Vibration	10-2000 Hz, vibration level: 0.0314 (m/s ²) ² /Hz, 24 hrs/axis (48 hrs total), 2 directions: horizontal and vertical
IEC 60068-2-32	Drop Test	Drop of 1 meter to floor made of concrete. Dropped twice on the threaded end and two times perpendicular to the threaded end.
IP-65 (Gauge)	Ingress Protection	Dust-tight, protected against water jets
IP-66 (Sealed Gauge)	Ingress Protection	Dust-tight, protected against powerful water jets

Performance

Ambient Temperature: 25°C (77°F) (Unless otherwise specified)

Parameters	MIN	TYP	MAX	UNITS	NOTES
Accuracy	-0.1		+0.1	%Span	1
Zero Error	-0.5		+0.5	%Span	2
Span Error	-0.5		+0.5	%Span	3
Thermal Error, Zero	-0.5		+0.5	%Span	4
Thermal Error, Span	-0.5		+0.5	%Span	5
Stability (1 year)		±0.25		%Span	
Proof Pressure		2X Rated Pressure		PSI	6
Burst Pressure		5X Rated Pressure or 50,000 (whichever is less)		PSI	7
Pressure Cycles	10 Million			Cycles	
Compensated Temp. Range		-20 to 70° (-4 to 158°)		°C (°F)	

Electrical Data

Model	AST46HA			
Output	4-20mA	0-5V, 1-5V, 1-6V	0-10V, 1-10V	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	15-28VDC	5.0 ± 0.5VDC
Output Impedance	> 10k Ω	< 100 Ω	< 100 Ω	< 100 Ω
Current Consumption	-	<10mA	<10mA	<10mA
Output Noise	-	<1mv RMS	<1mV RMS	<1mV RMS
Output Load	0-800 Ohms	5k Ohms min.	5k Ohms min.	5k Ohms, min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes
Sampling Rate	400Hz	400Hz	400Hz	400Hz

Notes

1. The maximum deviation from a best fit straight line (BFSL) fitted to the output measured over the pressure range at 25°C. Includes all errors due to pressure non-linearity, hysteresis, and non-repeatability. Span is the algebraic difference between full scale output and zero pressure offset.
2. The maximum variation from the ideal offset measured at 25°C.
3. The maximum variation from the ideal full-scale span measured at 25°C.
4. The maximum variation of offset within the compensated temperature range relative to 25°C.
5. The maximum variation of full-scale span within the compensated temperature range relative to 25°C.
6. The maximum pressure that can be safely applied to the product for it to remain in specification once pressure is returned to the operating pressure range.
7. The maximum pressure that can be applied without causing escape of the pressure media.

Dimensions & Electrical Connection

Unless otherwise specified, all dimensions are in inches

<p>EC + SH + PC = Total Nominal Product Length</p>		<p>Ranges 25 PSI and Above</p> <p>EC = Electrical Connector SH = Sensor Housing PC = Process Connection V = Voltage Supply N/C = Not Connected WP = Wide Pin S = Signal</p>															
<p>EC + SH + PC = Total Nominal Product Length</p>		<p>Ranges Below 25 PSI</p> <p>EC = Electrical Connector SH = Sensor Housing PC = Process Connection V = Voltage Supply N/C = Not Connected WP = Wide Pin S = Signal</p>															
Electrical Connectors Option Codes																	
Cable																	
T 2ft (0.6m)	U 4ft (1.2m)	W 6.6ft (2m)															
<table border="1"> <thead> <tr> <th>Color</th> <th>3 Wire Voltage</th> <th>4-20mA Case</th> </tr> </thead> <tbody> <tr> <td>Green</td> <td>Case</td> <td>Case</td> </tr> <tr> <td>Black</td> <td>GND</td> <td>-V</td> </tr> <tr> <td>Red</td> <td>+V</td> <td>+V</td> </tr> <tr> <td>White</td> <td>S</td> <td>N/C</td> </tr> </tbody> </table>	Color	3 Wire Voltage	4-20mA Case	Green	Case	Case	Black	GND	-V	Red	+V	+V	White	S	N/C		
Color	3 Wire Voltage	4-20mA Case															
Green	Case	Case															
Black	GND	-V															
Red	+V	+V															
White	S	N/C															
Pressure Port Option Codes																	
A 1/4 NPT Male	I 1/4 NPT Female	P 1/2 NPT Male	W F250C Female Autoclave														

Legend	
✓	Standard Available
X	Not Available

Available Process Connection, Material Configurations & Pressure Codes

17-4PH PSI

Pressure Range	Pressure Reference	Pressure Range Code	PSI Unit	Process Connection Code			
				A	I	P	W
-14.7 - 25	V	0025	P	✓	✓	✓	X
-14.7 - 50	V	0050	P	✓	✓	✓	X
-14.7 - 100	V	0100	P	✓	✓	✓	X
-14.7 - 150	V	0150	P	✓	✓	✓	X
-14.7 - 200	V	0200	P	✓	✓	✓	X
-14.7 - 250	V	0250	P	✓	✓	✓	X
-14.7 - 500	V	0500	P	✓	✓	✓	X
0 - 25	G	0025	P	✓	✓	✓	X
0 - 50	G	0050	P	✓	✓	✓	X
0 - 100	G	0100	P	✓	✓	✓	X
0 - 150	G	0150	P	✓	✓	✓	X
0 - 200	G	0200	P	✓	✓	✓	X
0 - 250	G	0250	P	✓	✓	✓	X
0 - 500	G	0500	P	✓	✓	✓	X
0 - 1,000	0	1000	P	✓	✓	✓	X
0 - 2,500	0	2500	P	✓	✓	✓	X
0 - 5,000	0	5000	P	✓	✓	✓	X
0 - 7,500	0	7500	P	✓	✓	✓	X
0 - 10,000	1	0000	P	✓	✓	✓	X
0 - 15,000	1	5000	P	X	✓	✓	X
0 - 20,000	2	0000	P	X	X	X	✓

17-4PH Bar

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	✓	✓	X
-1 to 5	V	0005	B	✓	✓	✓	X
-1 to 7	V	0007	B	✓	✓	✓	X
-1 to 10	V	0010	B	✓	✓	✓	X
-1 to 20	V	0020	B	✓	✓	✓	X
0 - 2	G	0002	B	✓	✓	✓	X
0 - 5	G	0005	B	✓	✓	✓	X
0 - 7	G	0007	B	✓	✓	✓	X
0 - 10	G	0010	B	✓	✓	✓	X
0 - 20	G	0020	B	✓	✓	✓	X
0 - 35	G	0035	B	✓	✓	✓	X
0 - 50	G	0050	B	✓	✓	✓	X
0 - 100	0	0100	B	✓	✓	✓	X
0 - 250	0	0250	B	✓	✓	✓	X
0 - 350	0	0350	B	✓	✓	✓	X
0 - 500	0	0500	B	✓	✓	✓	X
0 - 700	0	0700	B	✓	✓	✓	X
0 - 1,000	0	0000	B	X	✓	✓	X

INDUSTRIAL OEM

AST46HA Pressure Transmitter

316L PSI

Pressure Range	Pressure Reference	Pressure Range Code	PSI Unit	Process Connection Code			
				A	I	P	W
0 - 1	G	0001	P	✓	X	✓	X
0 - 2.5**	G	0069	H	✓	X	✓	X
0 - 5	G	0005	P	✓	X	✓	X
0 - 7.5**	G	0208	H	✓	X	✓	X
0 - 10	G	0010	P	✓	X	✓	X
0 - 15	G	0015	P	✓	X	✓	X
-14.7 - 25	V	0025	P	✓	✓	✓	X
-14.7 - 50	V	0050	P	✓	✓	✓	X
-14.7 - 100	V	0100	P	✓	✓	✓	X
-14.7 - 150	V	0150	P	✓	✓	✓	X
-14.7 - 200	V	0200	P	✓	✓	✓	X
-14.7 - 250	V	0250	P	✓	✓	✓	X
-14.7 - 500	V	0500	P	✓	✓	✓	X
0 - 25	G	0025	P	✓	✓	✓	X
0 - 50	G	0050	P	✓	✓	✓	X
0 - 100	G	0100	P	✓	✓	✓	X
0 - 150	G	0150	P	✓	✓	✓	X
0 - 200	G	0200	P	✓	✓	✓	X
0 - 250	G	0250	P	✓	✓	✓	X
0 - 500	G	0500	P	✓	✓	✓	X
0 - 1,000	0	1000	P	✓	✓	✓	X
0 - 2,500	0	2500	P	✓	✓	✓	X
0 - 5,000	0	5000	P	✓	✓	✓	X
0 - 7,500	0	7500	P	✓	✓	✓	X
0 - 10,000	1	0000	P	✓	✓	✓	X
0 - 15,000	1	5000	P	X	✓	X	X
0 - 20,000	2	0000	P	X	X	X	✓

316L Bar

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	✓	✓	X
-1 to 5	V	0005	B	✓	✓	✓	X
-1 to 7	V	0007	B	✓	✓	✓	X
-1 to 10	V	0010	B	✓	✓	✓	X
-1 to 20	V	0020	B	✓	✓	✓	X
0 - 2	G	0002	B	✓	✓	✓	X
0 - 5	G	0005	B	✓	✓	✓	X
0 - 7	G	0007	B	✓	✓	✓	X
0 - 10	G	0010	B	✓	✓	✓	X
0 - 20	G	0020	B	✓	✓	✓	X
0 - 35	G	0035	B	✓	✓	✓	X
0 - 50	G	0050	B	✓	✓	✓	X
0 - 100	0	0100	B	✓	✓	✓	X
0 - 250	0	0250	B	✓	✓	✓	X
0 - 350	0	0350	B	✓	✓	✓	X
0 - 500	0	0500	B	✓	✓	✓	X
0 - 700	0	0700	B	✓	✓	✓	X
0 - 1,000	0	0000	B	X	✓	X	X

INDUSTRIAL OEM

AST46HA Pressure Transmitter

Inconel PSI

Pressure Range	Pressure Reference	Pressure Range Code	PSI Unit	Process Connection Code			
				A	I	P	W
-14.7 - 25	V	0025	P	✓	X	✓	X
-14.7 - 50	V	0050	P	✓	X	✓	X
-14.7 - 100	V	0100	P	✓	X	✓	X
-14.7 - 150	V	0150	P	✓	X	✓	X
-14.7 - 200	V	0200	P	✓	X	✓	X
-14.7 - 250	V	0250	P	✓	X	✓	X
-14.7 - 500	V	0500	P	✓	X	✓	X
0 - 25	G	0025	P	✓	X	✓	X
0 - 50	G	0050	P	✓	X	✓	X
0 - 100	G	0100	P	✓	X	✓	X
0 - 150	G	0150	P	✓	X	✓	X
0 - 200	G	0200	P	✓	X	✓	X
0 - 250	G	0250	P	✓	X	✓	X
0 - 500	G	0500	P	✓	X	✓	X
0 - 1,000	0	1000	P	✓	X	✓	X
0 - 2,500	0	2500	P	✓	X	✓	X
0 - 5,000	0	5000	P	✓	X	✓	X
0 - 7,500	0	7500	P	✓	X	✓	X
0 - 10,000	1	0000	P	✓	X	✓	X
0 - 15,000	1	5000	P	X	✓	✓	X
0 - 20,000	2	0000	P	X	X	X	✓

Inconel Bar

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	X	✓	X
-1 to 5	V	0005	B	✓	X	✓	X
-1 to 7	V	0007	B	✓	X	✓	X
-1 to 10	V	0010	B	✓	X	✓	X
-1 to 20	V	0020	B	✓	X	✓	X
0 - 2	G	0002	B	✓	X	✓	X
0 - 5	G	0005	B	✓	X	✓	X
0 - 7	G	0007	B	✓	X	✓	X
0 - 10	G	0010	B	✓	X	✓	X
0 - 20	G	0020	B	✓	X	✓	X
0 - 35	G	0035	B	✓	X	✓	X
0 - 50	G	0050	B	✓	X	✓	X
0 - 100	0	0100	B	✓	X	✓	X
0 - 250	0	0250	B	✓	X	✓	X
0 - 350	0	0350	B	✓	X	✓	X
0 - 500	0	0500	B	✓	X	✓	X
0 - 700	0	0700	B	✓	X	✓	X
0 - 1,000	0	1000	B	X	X	✓	X

INDUSTRIAL OEM

AST46HA Pressure Transmitter

Hastelloy PSI

Pressure Range	Pressure Reference	Pressure Range Code	PSI Unit	Process Connection Code			
				A	I	P	W
0 - 1	G	0001	P	X	X	✓	X
0 - 10	G	0010	P	X	X	✓	X
0 - 15	G	0015	P	X	X	✓	X
-14.7 - 25	V	0025	P	✓	X	✓	X
-14.7 - 50	V	0050	P	✓	X	✓	X
-14.7 - 100	V	0100	P	✓	X	✓	X
-14.7 - 150	V	0150	P	✓	X	✓	X
-14.7 - 200	V	0200	P	✓	X	✓	X
-14.7 - 250	V	0250	P	✓	X	✓	X
-14.7 - 500	V	0500	P	✓	X	✓	X
0 - 25	G	0025	P	✓	X	✓	X
0 - 50	G	0050	P	✓	X	✓	X
0 - 100	G	0100	P	✓	X	✓	X
0 - 150	G	0150	P	✓	X	✓	X
0 - 200	G	0200	P	✓	X	✓	X
0 - 250	G	0250	P	✓	X	✓	X
0 - 500	G	0500	P	✓	X	✓	X
0 - 1,000	0	1000	P	✓	X	✓	X
0 - 2,500	0	2500	P	✓	X	✓	X
0 - 5,000	0	5000	P	✓	X	✓	X
0 - 7,500	0	7500	P	✓	X	✓	X
0 - 10,000	1	0000	P	✓	X	✓	X
0 - 15,000	1	5000	P	X	X	✓	X

Hastelloy Bar

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	X	✓	X
-1 to 5	V	0005	B	✓	X	✓	X
-1 to 7	V	0007	B	✓	X	✓	X
-1 to 10	V	0010	B	✓	X	✓	X
-1 to 20	V	0020	B	✓	X	✓	X
0 - 2	G	0002	B	✓	X	✓	X
0 - 5	G	0005	B	✓	X	✓	X
0 - 7	G	0007	B	✓	X	✓	X
0 - 10	G	0010	B	✓	X	✓	X
0 - 20	G	0020	B	✓	X	✓	X
0 - 35	G	0035	B	✓	X	✓	X
0 - 50	G	0050	B	✓	X	✓	X
0 - 100	0	0100	B	✓	X	✓	X
0 - 250	0	0250	B	✓	X	✓	X
0 - 350	0	0350	B	✓	X	✓	X
0 - 500	0	0500	B	✓	X	✓	X
0 - 700	0	0700	B	✓	X	✓	X
0 - 1,000	0	1000	B	X	X	✓	X

*See Ordering Information for list of options.
**Must be orderd in inches H₂O

INDUSTRIAL OEM

AST46HA Pressure Transmitter

Ordering Information

AST46HA	A	1	0000	P	3	T	1	H	000	-Z								
Process Connection A= 1/4" NPT Male I= 1/4" NPT Female P= 1/2" NPT Male W= F250C Female Autoclave																		
Pressure Reference G= Gauge Pressure V= Gauge Pressure (Vacuum Calibrated) 0= Sealed Gauge (Up to 9,999 PSI) 1= Sealed Gauge (10,000 to 19,999 PSI) 2= Sealed Gauge (20,000 PSI Only)																		
Pressure Range Insert Pressure Range Code (see table for availability)																		
Pressure Unit B= Bar P= PSI																		
Output 1= 0.5-4.5V ratiometric 2= 0-5V (3 wire) 3= 1-5V (3 wire + case connection) 4= 4-20mA (loop powered + case connection) 5= 0-10V (3 wire) 6= 1-6V (3 wire + case connection) G= 1-10V																		
Electrical Connection T= 2ft. 18 AWG wires U= 4ft. 18 AWG wires W= 2 Meter 18 AWG wires																		
Wetted Material 0= 17-4PH 1= 316L 2= Inconel 718 4= Hastelloy C276																		
Failure State H= High L= Low N= None																		
Option Codes 000= No Options																		
Approval Type <table border="1" style="width: 100%;"> <tr> <td style="width: 15%;">Leave Blank</td> <td>Class I Div I, Groups A, B, C and D; Ex d IIC T5 Gb Class 1, Zone 1, AEx d IIC T5 Gb (For Pressure Range Code 0, 1 and 2)</td> </tr> <tr> <td></td> <td>Class II, Div. I, Groups E, F and G Ex tb IIIC T100 Db Zone 21, AEx tb IIIC T100 Db (For Pressure Range Code G and V)</td> </tr> <tr> <td></td> <td>All configurations are ANSI/ISA 12.27.01 Single Seal Approved</td> </tr> <tr> <td>-Z</td> <td>CRN Registered to ANSI/ASME B31.3. in addition to standard configuration approvals</td> </tr> </table>											Leave Blank	Class I Div I, Groups A, B, C and D; Ex d IIC T5 Gb Class 1, Zone 1, AEx d IIC T5 Gb (For Pressure Range Code 0, 1 and 2)		Class II, Div. I, Groups E, F and G Ex tb IIIC T100 Db Zone 21, AEx tb IIIC T100 Db (For Pressure Range Code G and V)		All configurations are ANSI/ISA 12.27.01 Single Seal Approved	-Z	CRN Registered to ANSI/ASME B31.3. in addition to standard configuration approvals
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	Class II, Div. I, Groups E, F and G Ex tb IIIC T100 Db Zone 21, AEx tb IIIC T100 Db (For Pressure Range Code G and V)																	
	All configurations are ANSI/ISA 12.27.01 Single Seal Approved																	
-Z	CRN Registered to ANSI/ASME B31.3. in addition to standard configuration approvals																	

Notes: CSA approved products require case/earth ground electrical connection. See Dimensions and Electrical Connection Section for wiring details.

NORTH AMERICA

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