



PRECISION

Pressure Transducer / Transmitter AST20HA

Overview

The AST20HA is a digitally compensated precision pressure transducer / pressure transmitter that offers high performance over temperature. Krystal Bond™ Technology alone offers excellent non-linearity and non-repeatability performance. When it is combined with the advanced electronics, the AST20HA steps into its own league of high performance pressure sensing at an affordable price.

Benefits

- Digital ASIC Compensation
- Superb Temperature Performance
- Real Time Thermal Compensation
- Real Time Linearity Correction
- Turndown Capability
- Pressures up to 45,000 PSI
- ABS (American Bureau of Shipping) Approved

Applications

- Aerospace
- Analytical Instruments
- Hydraulics
- Hydrogen (Consult factory for media compatibility)
- Labs / Metrology
- Medical
- Military
- Test Stands

Environmental Data

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

Operating Ambient	-40 to 85°C (-40 to 185°F)
Storage	-40 to 125°C (-40 to 250°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-66	Ingress Protection	Dust-tight, protected against powerful water jets

Electromagnetic Compatibility (EMC)

Standard	Description	Test Value
EN55011	Radiated Emissions	Class A, 30-1000 MHz ±8 kV Air Discharge
EN61000-4-2	Electrostatic Discharge Immunity	±4 kV Contact Discharge, VCP, HCP
EN61000-4-3	Radiated Electromagnetic Field Immunity	10V/m, 30-2700 MHz 80% 1kHz AM Modulation ±0.5 kV, ±1 kV, ±2 kV on DC Mains
EN61000-4-4	Electrical Fast Transient/Burst Immunity	±0.5 kV, ±1 kV on I/O Ports
EN61000-4-5	Surge Immunity	±0.5 kV, ±1 kV on I/O Ports & DC Lines 10 V rms, 0.15-80 MHz, DC Mains
EN61000-4-6	Conducted Immunity	10 V rms, 0.15-80 MHz, I/O Ports 80% 1kHz AM Modulation
EN61000-4-8	Power Frequency Magnetic Field Immunity Test	30 A/m @ (50Hz, 60Hz) 3 orthogonal orientations

Performance

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

Parameters	MIN	TYP	MAX	UNITS	NOTES
Accuracy	-0.1		+0.1	%Span	1
Accuracy (Range>15,000PSI)	-0.2		+0.2	%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)		±0.1		%Span	
Proof Pressure		2X Rated Pressure		PSI	6
Burst Pressure		5X Rated Pressure or 50,000 (whichever is less)		PSI	7
Compensated Temp. Range		0 - 70° (32 to 158°)		°C (°F)	

Electrical Data

Model	AST20HA			
Output	4-20mA	0-5V, 1-5V	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	0-800Ω	5k Ω, Min.	5k Ω, Min.	5k Ω, Min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes
Sampling Rate	400Hz	400Hz	400Hz	400Hz

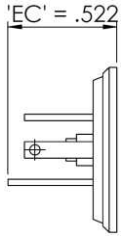
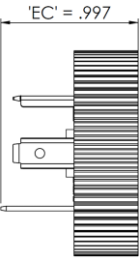
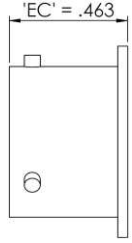
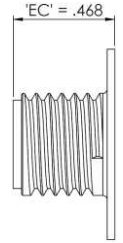
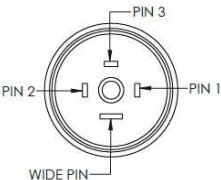
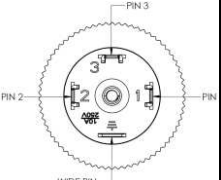
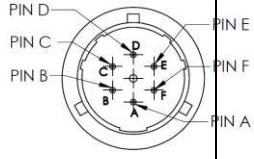
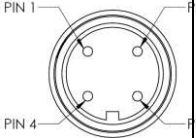
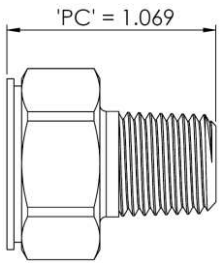
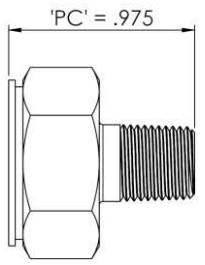
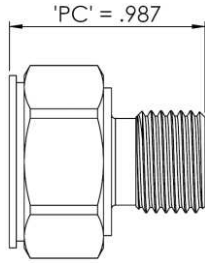
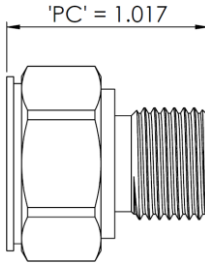
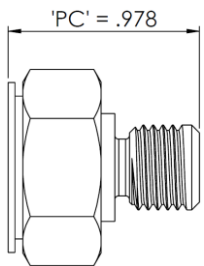
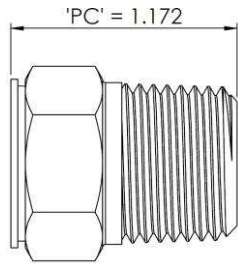
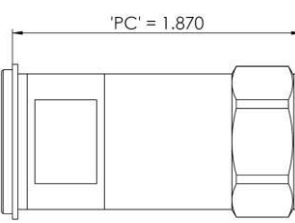
Notes

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

$EC + SH + PC = \text{Total Nominal Product Length}$		<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>																
$EC + SH + PC = \text{Total Nominal Product Length}$		<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																		
A 2ft (0.6m)	B 4ft (1.2m)	C 6ft (1.8m)	D 10ft (3m)															
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Color</th> <th>3 Wire Voltage</th> <th>4-20mA</th> </tr> </thead> <tbody> <tr> <td>Green</td> <td>N/C</td> <td>N/C</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	Green	N/C	N/C	Black	GND	-V	Red	+V	+V	White	S	N/C		
Color	3 Wire Voltage	4-20mA																
Green	N/C	N/C																
Black	GND	-V																
Red	+V	+V																
White	S	N/C																

Electrical Connectors Option Codes (Cont'd)											
E DIN 43650C 8.0mm (Mini-DIN)			I DIN 43650A 18.0mm (Big- DIN)			R 6 Pin Bendix			Y M12X1		
											
											
Pin	3 Wire Voltage	4-20mA	Pin	3 Wire Voltage	4-20mA	Pin	3 Wire Voltage	4-20mA	Pin	3 Wire Voltage	4-20mA
1	S	N/C	1	+V	+V	A	+V	+V	1	+V	+V
2	GND	-V	2	GND	-V	B	S	-V	2	N/C	N/C
3	+V	+V	3	S	N/C	C	N/C	N/C	3	GND	-V
WP	N/C	N/C	WP	N/C	N/C	D	GND	N/C	4	S	N/C
						E	N/C	N/C			
						F	N/C	N/C			
Pressure Port Option Codes											
A 1/4 NPT Male			B 1/8 NPT Male			C 1/4 BSPP Male			E 9/16 – 18 UNF Male		
											
F 7/16 – 20 UNF Male			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 Range Code	PSI Unit	Process Connection Code						
			A	B	C	E	F	P	W
-14.7 - 25	V0025	P	✓	X	✓	✓	X	✓	X
-14.7 - 50	V0050	P	✓	✓	✓	✓	✓	✓	X
-14.7 - 100	V0100	P	✓	✓	✓	✓	✓	✓	X
-14.7 - 150	V0150	P	✓	✓	✓	✓	✓	✓	X
-14.7 - 200	V0200	P	✓	✓	✓	✓	✓	✓	X
-14.7 - 250	V0250	P	✓	✓	✓	✓	✓	✓	X
-14.7 - 500	V0500	P	✓	✓	✓	✓	✓	✓	X
0 - 25	00025	P	✓	X	✓	✓	X	✓	X
0 - 50	00050	P	✓	✓	✓	✓	✓	✓	X
0 - 100	00100	P	✓	✓	✓	✓	✓	✓	X
0 - 150	00150	P	✓	✓	✓	✓	✓	✓	X
0 - 200	00200	P	✓	✓	✓	✓	✓	✓	X
0 - 250	00250	P	✓	✓	✓	✓	✓	✓	X
0 - 500	00500	P	✓	✓	✓	✓	✓	✓	X
0 - 1,000	01000	P	✓	✓	✓	✓	✓	✓	X
0 - 2,500	02500	P	✓	✓	✓	✓	✓	✓	X
0 - 5,000	05000	P	✓	✓	✓	✓	✓	✓	X
0 - 7,500	07500	P	✓	✓	✓	✓	✓	✓	X
0 - 10,000	10000	P	✓	✓	✓	✓	✓	✓	X
0 - 15,000	15000	P	X	X	✓	X	✓	✓	X
0 - 20,000	20000	P	X	X	X	X	X	X	✓
0 - 30,000	30000	P	X	X	X	X	X	X	✓
0 - 45,000	45000	P	X	X	X	X	X	X	✓

17-4PH Bar

Pressure Range	Pressure Range Code	BAR Unit	Process Connection Code						
			A	B	C	E	F	P	W
-1 to 2	V0002	B	✓	X	✓	✓	X	✓	X
-1 to 5	V0005	B	✓	✓	✓	✓	✓	✓	X
-1 to 7	V0007	B	✓	✓	✓	✓	✓	✓	X
-1 to 10	V0010	B	✓	✓	✓	✓	✓	✓	X
-1 to 20	V0020	B	✓	✓	✓	✓	✓	✓	X
0 - 2	00002	B	✓	✓	✓	✓	✓	✓	X
0 - 5	00005	B	✓	✓	✓	✓	✓	✓	X
0 - 7	00007	B	✓	✓	✓	✓	✓	✓	X
0 - 10	00010	B	✓	✓	✓	✓	✓	✓	X
0 - 20	00020	B	✓	X	✓	✓	X	✓	X
0 - 35	00035	B	✓	✓	✓	✓	✓	✓	X
0 - 50	00050	B	✓	✓	✓	✓	✓	✓	X
0 - 100	00100	B	✓	✓	✓	✓	✓	✓	X
0 - 250	00250	B	✓	✓	✓	✓	✓	✓	X
0 - 350	00350	B	✓	✓	✓	✓	✓	✓	X
0 - 500	00500	B	✓	✓	✓	✓	✓	✓	X
0 - 700	00700	B	✓	✓	✓	✓	✓	✓	X
0 - 1,000	01000	B	X	X	✓	X	✓	✓	X
0 - 1,400	01400	B	X	X	X	X	X	X	✓
0 - 2,000	02000	B	X	X	X	X	X	X	✓
0 - 3,000	03000	B	X	X	X	X	X	X	✓

INDUSTRIAL OEM

AST20HA Pressure Transmitter

316L PSI

Pressure Range	Pressure Range Code	PSI Unit	Process Connection Code						
			A	B	C	E	F	P	W
-14.7 - 25	V0025	P	✓	X	✓	✓	X	✓	X
-14.7 - 50	V0050	P	✓	X	✓	✓	✓	✓	X
-14.7 - 100	V0100	P	✓	X	✓	✓	✓	✓	X
-14.7 - 150	V0150	P	✓	X	✓	✓	✓	✓	X
-14.7 - 200	V0200	P	✓	X	✓	✓	✓	✓	X
-14.7 - 250	V0250	P	✓	X	✓	✓	✓	✓	X
-14.7 - 500	V0500	P	✓	X	✓	✓	✓	✓	X
0 - 25	00025	P	✓	X	✓	✓	X	✓	X
0 - 50	00050	P	✓	X	✓	✓	✓	✓	X
0 - 100	00100	P	✓	X	✓	✓	✓	✓	X
0 - 150	00150	P	✓	X	✓	✓	✓	✓	X
0 - 200	00200	P	✓	X	✓	✓	✓	✓	X
0 - 250	00250	P	✓	X	✓	✓	✓	✓	X
0 - 500	00500	P	✓	X	✓	✓	✓	✓	X
0 - 1,000	01000	P	✓	X	✓	✓	✓	✓	X
0 - 2,500	02500	P	✓	X	✓	✓	✓	✓	X
0 - 5,000	05000	P	✓	X	✓	✓	✓	✓	X
0 - 7,500	07500	P	✓	X	✓	X	✓	✓	X
0 - 10,000	10000	P	✓	X	✓	X	✓	✓	X
0 - 15,000	15000	P	X	X	X	X	✓	X	X
0 - 20,000	20000	P	X	X	X	X	X	X	✓
0 - 30,000	30000	P	X	X	X	X	X	X	X
0 - 45,000	45000	P	X	X	X	X	X	X	X

316L Bar

Pressure Range	Pressure Range Code	BAR Unit	Process Connection Code						
			A	B	C	E	F	P	W
-1 to 2	V0002	B	✓	X	✓	✓	X	✓	X
-1 to 5	V0005	B	✓	X	✓	✓	✓	✓	X
-1 to 7	V0007	B	✓	X	✓	✓	✓	✓	X
-1 to 10	V0010	B	✓	X	✓	✓	✓	✓	X
-1 to 20	V0020	B	✓	X	✓	✓	✓	✓	X
0 - 2	00002	B	✓	X	✓	✓	X	✓	X
0 - 5	00005	B	✓	X	✓	✓	✓	✓	X
0 - 7	00007	B	✓	X	✓	✓	✓	✓	X
0 - 10	00010	B	✓	X	✓	✓	✓	✓	X
0 - 20	00020	B	✓	X	✓	✓	✓	✓	X
0 - 35	00035	B	✓	X	✓	✓	✓	✓	X
0 - 50	00050	B	✓	X	✓	✓	✓	✓	X
0 - 100	00100	B	✓	X	✓	✓	✓	✓	X
0 - 250	00250	B	✓	X	✓	✓	✓	✓	X
0 - 350	00350	B	✓	X	✓	✓	✓	✓	X
0 - 500	00500	B	✓	X	✓	✓	✓	✓	X
0 - 700	00700	B	✓	X	✓	X	✓	✓	X
0 - 1,000	01000	B	X	X	X	X	✓	X	X
0 - 1,400	01400	B	X	X	X	X	X	X	✓
0 - 2,000	02000	B	X	X	X	X	X	X	X
0 - 3,000	03000	B	X	X	X	X	X	X	X

INDUSTRIAL OEM

AST20HA Pressure Transmitter

Inconel PSI

Pressure Range	Pressure Range Code	PSI Unit	Process Connection Code						
			A	B	C	E	F	P	W
-14.7 - 25	V0025	P	✓	X	X	X	X	✓	X
-14.7 - 50	V0050	P	✓	X	X	X	X	✓	X
-14.7 - 100	V0100	P	✓	X	X	X	X	✓	X
-14.7 - 150	V0150	P	✓	X	X	X	X	✓	X
-14.7 - 200	V0200	P	✓	X	X	X	X	✓	X
-14.7 - 250	V0250	P	✓	X	X	X	X	✓	X
-14.7 - 500	V0500	P	✓	X	X	X	X	✓	X
0 - 25	00025	P	✓	X	X	X	X	✓	X
0 - 50	00050	P	✓	X	X	X	X	✓	X
0 - 100	00100	P	✓	X	X	X	X	✓	X
0 - 150	00150	P	✓	X	X	X	X	✓	X
0 - 200	00200	P	✓	X	X	X	X	✓	X
0 - 250	00250	P	✓	X	X	X	X	✓	X
0 - 500	00500	P	✓	X	X	X	X	✓	X
0 - 1,000	01000	P	✓	X	X	X	X	✓	X
0 - 2,500	02500	P	✓	X	X	X	X	✓	X
0 - 5,000	05000	P	✓	X	X	X	X	✓	X
0 - 7,500	07500	P	✓	X	X	X	X	✓	X
0 - 10,000	10000	P	✓	X	X	X	X	✓	X
0 - 15,000	15000	P	X	X	X	X	X	✓	X
0 - 20,000	20000	P	X	X	X	X	X	X	✓
0 - 30,000	30000	P	X	X	X	X	X	X	✓
0 - 45,000	45000	P	X	X	X	X	X	X	✓

Inconel Bar

Pressure Range	Pressure Range Code	BAR Unit	Process Connection Code						
			A	B	C	E	F	P	W
-1 to 2	V0002	B	✓	X	X	X	X	✓	X
-1 to 5	V0005	B	✓	X	X	X	X	✓	X
-1 to 7	V0007	B	✓	X	X	X	X	✓	X
-1 to 10	V0010	B	✓	X	X	X	X	✓	X
-1 to 20	V0020	B	✓	X	X	X	X	✓	X
0 - 2	00002	B	✓	X	X	X	X	✓	X
0 - 5	00005	B	✓	X	X	X	X	✓	X
0 - 7	00007	B	✓	X	X	X	X	✓	X
0 - 10	00010	B	✓	X	X	X	X	✓	X
0 - 20	00020	B	✓	X	X	X	X	✓	X
0 - 35	00035	B	✓	X	X	X	X	✓	X
0 - 50	00050	B	✓	X	X	X	X	✓	X
0 - 100	00100	B	✓	X	X	X	X	✓	X
0 - 250	00250	B	✓	X	X	X	X	✓	X
0 - 350	00350	B	✓	X	X	X	X	✓	X
0 - 500	00500	B	✓	X	X	X	X	✓	X
0 - 700	00700	B	✓	X	X	X	X	✓	X
0 - 1,000	01000	B	X	X	X	X	X	✓	X
0 - 1,400	01400	B	X	X	X	X	X	X	✓
0 - 2,000	02000	B	X	X	X	X	X	X	✓
0 - 3,000	03000	B	X	X	X	X	X	X	✓

*See Ordering Information for list of options.

INDUSTRIAL OEM

AST20HA Pressure Transmitter

Ordering Information

AST20HA	A	05000	P	4	E	0	H	000
Process Connection A = 1/4" NPT Male B = 1/8" NPT Male C = 1/4" BSPP Male E = 9/16"-18 UNF Male [SAE6] F = 7/16"-20 UNF Male [SAE4] P = 1/2" NPT Male W = F250C Female Autoclave								
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= 1-5V 4= 4-20mA 5= 0-10V G= 1-10V								
Electrical Connection A= 2 ft.(0.6m) B= 4 ft.(1.2m) C= 6 ft.(1.8m) D= 10 ft.(3.0m) E= Mini DIN 43650C I = DIN 43650A R= 6- Pin Bendix Y= M12x1								
Wetted Material 0=17-4PH 1=316 L 2= Inconel 718								
Fail Condition N= Not Specified H= Fail High L= Fail Low								
Option Codes 000= No Options								

Note: Mating connector Part no. A11028 available with Electrical Connection I. Sold Separately.

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