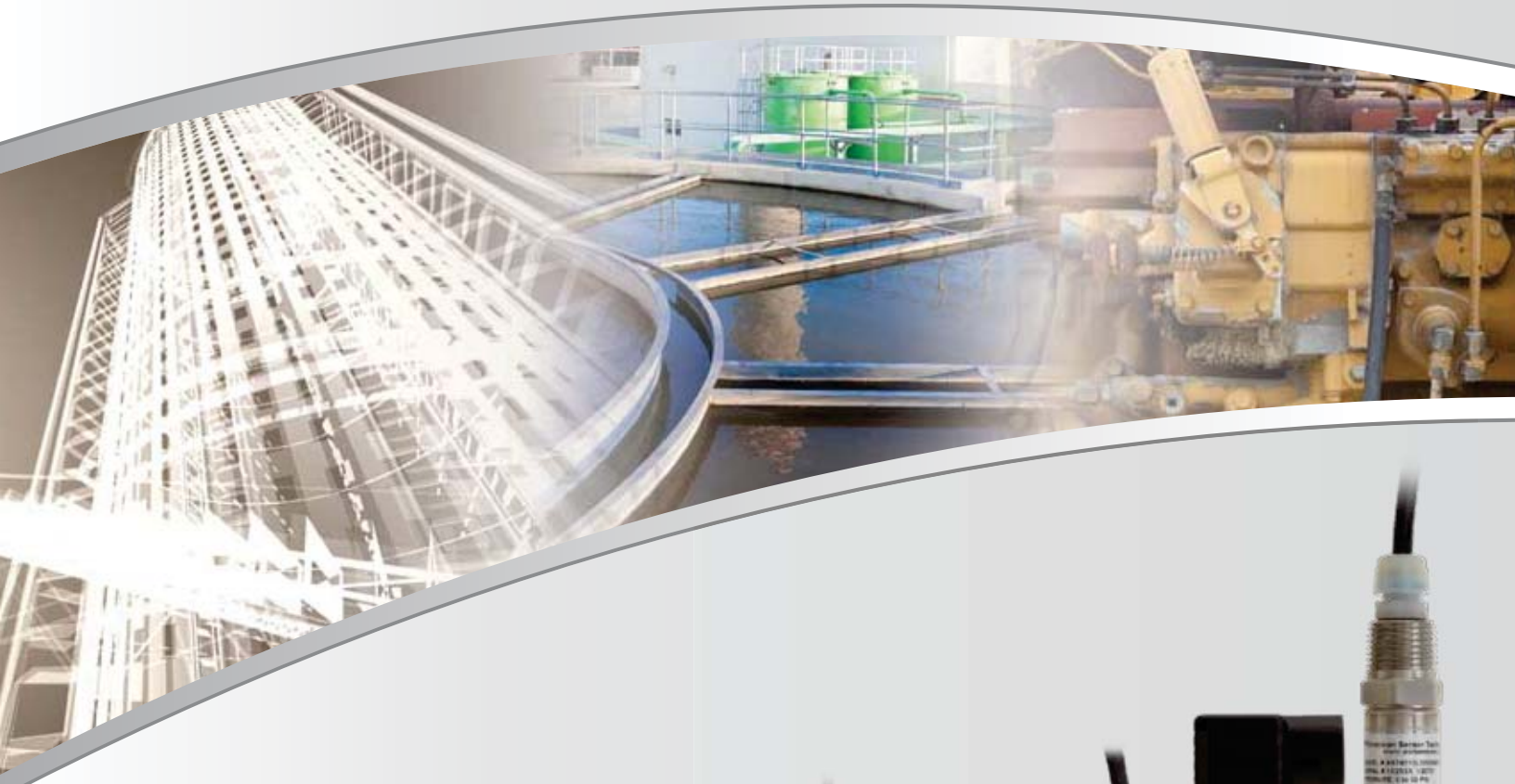




American Sensor Technologies

*Your Sensor Business Partner...*



**O E M**

**Pressure Sensor Products**



# About Us



**“The mission of American Sensor Technologies, Inc. is to be “your sensor business partner...”**

American Sensor Technologies, Inc. (AST) was incorporated in New Jersey on January 9, 1997, by Richard E. Tasker, Michael P. Eldredge and Karmjit S. Sidhu, for the purpose of developing MEMS (Micro-Electro Mechanical Structures) pressure sensor products with their proprietary Krystal Bond™ Technology.

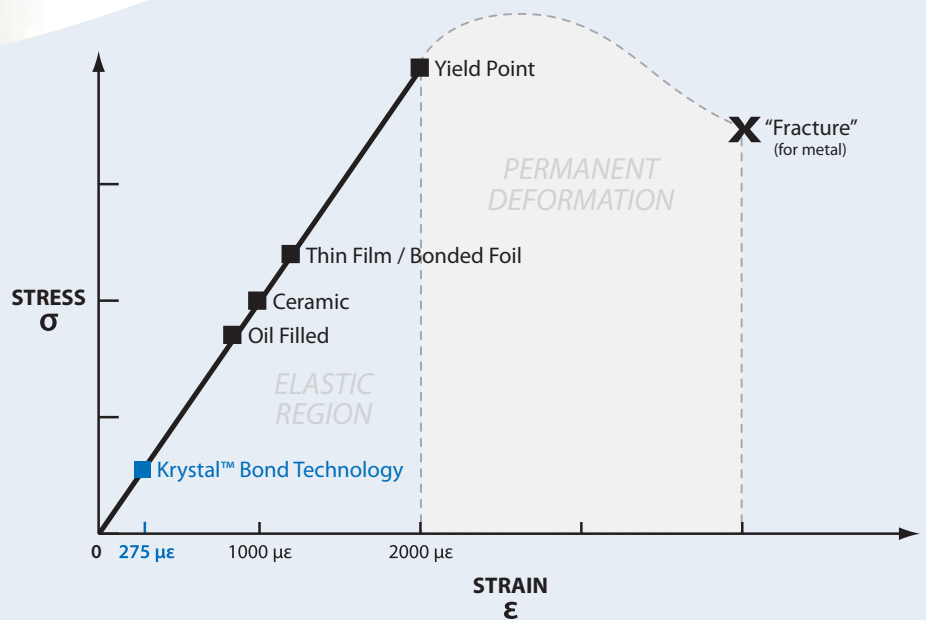
The dynamics of AST’s technologies allow its pressure sensing element to be packaged in virtually an unlimited number of configurations along with offering millivolt output pressure sensors, amplified voltage pressure transducers, or current output pressure transmitters. Products can be offered from our standard catalog or modified into a semi-custom or custom package for OEM applications.

AST manufactures its pressure sensor products and related items under an ISO 9001:2008 certified quality system.

## Our Technology

With an operating strain at less than fifteen percent (15%) of the metal’s yield point, the AST pressure sensor cell has less fatigue, higher proof/burst pressure capability, and excellent long term stability. A simple example of this is inflating and deflating a balloon several times. The stretching and distortion depends on the thickness of the balloon.

The principles of pressure measurement are the same. As a diaphragm is pressurized closer to the yield point, a transformation in the shape occurs, changing the output over time. Krystal Bond™ Technology would be similar to trying to stretch a balloon as thick as a car tire.



“American Sensor Technologies, Inc. will meet or exceed customer expectations for quality, delivery and performance. We will meet applicable regulatory requirements. We are committed to growing, improving and enhancing our processes, products and people.”

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# OEM Pressure Sensors & Transducers

AST4000

AST4100

AST4200



- The **AST4000** OEM pressure transducer / transmitter remains the most popular configuration. With its welded stainless steel housing and various electrical connections, the AST4000 can be packaged for virtually any OEM pressure transducer application. Voltage and current output signals are available and all products.
- The **AST4100** is a compact, low cost pressure transducer with a cable electrical connection. Mainly used in benign environments, the AST4100 is an economical option for pressure sensing.
- The **AST4200** series offers the same features as the AST4000, but uses a unique pressure port design that enables direct mounting to panels without the use of an adapter.

## Benefits

- High Strength Stainless Steel Construction
- No Oil, Welds or Internal O-rings
- Wide Operating Temperature
- Pressures up to 10,000 PSI
- Low Static and Thermal Errors
- Unparalleled Price and Performance
- Compatible with Wide Variety of Liquids and Gases
- EMI/RFI Protection
- UL/cUL 508 Approved (with housing)

## Applications

- Industrial OEM Equipment
- Water Management
- Pneumatics
- Hydrogen Storage
- Sub Sea Pressure
- HVAC/R Equipment
- Control Panels
- Hydraulic Systems
- Data Loggers

## Environmental Data

### Temperature

Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 100°C (-40 to 212°F)

### Thermal Limits

Compensated Range	0 to 55°C (32 to 132°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS

### Other

Shock	EN 60068-2-27
Vibration	EN 60068-2-6, 60068-2-64, and IEC 68-2-32
EMI/RFI Protection:	Yes
Rating:	IP-66 (housing only)

## Performance @ 25°C (77°F)

Accuracy*	< ±0.5% BFS
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 20,000 PSI (whichever is less)
Pressure Cycles	> 100 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

Output	4-20mA	1-5VDC, 1-6VDC	0-50mV (10mV/V)	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	5VDC, typical	5VDC, regulated
Output Impedance	>10k Ohms	<100 Ohms, Nominal	1100 Ohms, Nominal	<100 Ohms, Nominal
Current Consumption:	20mA, typical	<10mA	<5mA	<10mA
Bandwidth	(-3dB): DC to 250 Hz	(-3dB): DC to 1kHz	(-3dB): DC to 5kHz, min	(-3dB): DC to 1kHz
Output Noise:	-	<2mV RMS	-	<2mV RMS
Zero Offset:	<±1% of FS	<±1% of FS	< ±2% of FS	<±1% of FS
Span Tolerance:	<±1.5% of FS	<±1.5% of FS	< ±2% of FS	<±1.5% of FS
Output Load:	0-800 Ohms@10-28VDC	10k Ohms, min	>1M Ohms	10K Ohms, min
Reverse Polarity Protection	Yes	Yes	-	Yes

## Ordering Information

**AST4000**

**A**

**00500**

**P**

**4**

**E**

**O**

**000**

**Series Type**

- AST4000= Industrial Grade ■
- AST4100= Compact ●
- AST4200= Panel Mount ◆

**Process Connection\***

- A= 1/4" NPT Male ■◆
- J= 1/8" NPT Female ◆
- B= 1/8" NPT Male ■◆
- K= SAE4 Female ■
- C= 1/4" BSPP Male ■◆
- P= 1/2" NPT Male ■
- F= 7/16" - 20 UNF Male ■◆
- V= 1/8" BSP Female ◆

\* "B" and "F" not available under 50PSI ("B" not available in 316L)

**Pressure Range** ■◆

Insert 5-digit pressure range code

**Pressure Unit** ■◆

- B= Bar
- K= kg/cm2
- P= PSI

**Outputs** ■◆

- 1= 0.5-4.5V ratiometric
- 4= 4-20mA (2 wire loop powered)
- A= 10mV/V
- 3= 1-5V
- 6= 1-6V

**Electrical** (for wiring information visit: <http://www.astensors.com/mediacenter.php>)

- A= 2 ft. (0.6m) ■◆
- E= Mini DIN 43650 ■◆
- K= Deutsch DT04-3 Pin ■◆
- B= 4 ft. (1.2m) ■◆
- F= Packard Metripack 150 3-Pin ■◆
- Y= M12x1 Eurofast ■
- C= 6 ft. (1.8m) ■◆
- G= 4-pin Molex (no housing) ■◆
- Z= Deutsch DT04-4 Pin ■◆
- D= 10 ft. (3.0m) ■◆
- I= DIN 43650A ■◆

**Wetted Material**

- 0= 17-4PH ■◆
- 1= 316L ■●
- 2= Inconel 718 ■

**Options** (contact factory for additional options)

- 000= No Options ■◆
- 006= Schrader Depressor Pin (only available with process connection "K") ■
- 143= Schrader Depressor Pin & Sealed Gauge References (only available with process connection "K") ■

## Pressure Ranges<sup>+</sup>

PSIG Measurement Range	Pressure Range Code
-14.7 to 25**	V0025**
0-25	00025
0-50	00050
0-100	00100
0-150	00150
0-200	00200
0-250	00250
0-500	00500
0-1,000	01000
0-2,500	02500
0-5,000	05000
0-7,500	07500
0-10,000	10000

BARG Measurement Range	Pressure Range Code
-1 to 2**	V0002**
0-2	00002
0-5	00005
0-7	00007
0-10	00010
0-20	00020
0-35	00035
0-50	00050
0-100	00100
0-250	00250
0-350	00350
0-500	00500
0-700	00700

<sup>+</sup>Typical ranges. All ranges between 0-25 PSI and 0-10,000 PSI available. <sup>\*\*</sup>Compound ranges up to -14.7 to 500 PSI available. Please consult factory.

# Industrial Pressure Transducer



AST2000



The AST2000 is an ASIC-compensated, high quality, stainless steel industrial pressure transducer designed for use in the measurement of liquids and gases. Intended for mid to high volume applications requiring excellent performance, the AST2000 succeeds by offering highly competitive pricing.

## Benefits

- Fully Welded Stainless Steel Housing
- No Oil Fill, Welds, or Internal O-rings
- Wide Operating Temperature
- Compatible with Liquids and Gases
- Rugged, Compact Design
- Pressures up to 10,000 PSI
- High Shock and Vibration
- EMI/RFI Protection

## Applications

- Industrial OEM Equipment
- Hydraulic Systems
- HVAC Equipment
- Refrigeration Equipment
- Automotive
- Energy / Water Management
- Test Stands
- Off-Road/Construction Equipment

## Environmental Data

### Temperature

Operating	-40 to 125°C (-40 to 250°F)
Storage	-40 to 125°C (-40 to 250°F)

### Thermal Limits

Compensated Range	0 to 55°C (32 to 131°F)
TC Zero	<± 1.0% FS
TC Span	<± 1.0% FS

### Other

Shock	100G, 11 msec, 1/2 sine
Vibration	20G peak, 20 to 2400 Hz.
EMI/RFI Protection:	Yes
Rating:	IP-66 (optional IP-67)

## Performance @ 25°C (77°F)

Accuracy*	< ±0.25% BFSL
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 20,000 PSI (whichever is less)
Pressure Cycles	> 100 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

Output	Voltage (.25-5V, 1-5V, 1-6V)	0.5-4.5V Ratiometric
Excitation	10-30VDC	5VDC
Output Impedance	<100 Ohms, Nominal	<100 Ohms, Nominal
Current Consumption:	<10mA	<10mA
Bandwidth	(-3dB): DC to 3KHZ	(3dB): DC to 3KHZ
Output Noise:	<2mV RMS	<2mV RMS
Zero Offset:	±0.5% of FS	±0.5% of FS
Span Tolerance:	±1.0% of FS	±1.0% of FS
Output Load:	10k Ohms, min	10K Ohms, min
Reverse Polarity Protection	Yes	Yes





## Ordering Information\*

AST2000

A

00500

P

1

E

O

000

**Series Type**

**Process Connection\*\***  
 A= 1/4" NPT Male      F= 7/16" - 20 UNF Male  
 B= 1/8" NPT Male      K= SAE4 Female  
 C= 1/4" BSPP Male

\*\* "B" and "F" not available under 50PSI ("B" not available in 316L)

**Pressure Range**  
 Insert 5-digit pressure code

**Pressure Unit**  
 B= Bar                      K= kg/cm2                      P= PSI

**Outputs**  
 1= 0.5-4.5V ratiometric      3= 1-5V                      6= 1-6V

**Electrical** (for wiring information visit: <http://www.astensors.com/mediacenter.php>)  
 E= Mini DIN 43650C                      R= 6-Pin Bendix  
 F= Packard Metripack 150 3-Pin                      Y= M12x1  
 K= Deutsch DT04 3-Pin                      Z= Deutsch DT04 4-Pin

**Wetted Material**  
 0= 17-4PH                      1= 316L

**Options** (contact factory for additional options)  
 000= No Options

\*Minimum order quantities may apply to certain configurations, please contact factory for more information.

## Pressure Ranges+

PSIG Measurement	-14.7 to 25**	V0025**
	0-25	00025
	0-50	00050
	0-100	00100
	0-150	00150
	0-200	00200
	0-250	00250
	0-500	00500
	0-1,000	01000
	0-2,500	02500
	0-5,000	05000
	0-7,500	07500
	0-10,000	10000
		Pressure Code

BARG Measurement	-1 to 2**	V0002**
	0-2	00002
	0-5	00005
	0-7	00007
	0-10	00010
	0-20	00020
	0-35	00035
	0-50	00050
	0-100	00100
	0-250	00250
	0-350	00350
	0-500	00500
	0-700	00700
		Pressure Code

+All pressures between 0-25 PSI and 0-10,000 PSI available. \*\*Compound pressures up to -14.7 to 500 PSI available. Please consult factory.

# Precision Pressure Transducer / Transmitter



AST20HA



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

## Applications

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

## Environmental Data

### Temperature

Operating	-40 to 85°C (-40 to 185°F)
Storage	-50 to 125°C (-58 to 257°F)

### Thermal Limits

Compensated Range	0-70°C (30 to 158°F)
TC Zero	<± 0.5% FS
TC Span	<± 0.5% FS

### Other

Shock	100G, 11 msec, 1/2 sine
Vibration	10G peak, 20 to 2000Hz
EMI/RFI Protection:	Yes
Rating:	IP-66

## Performance @ 25°C (77°F)

Accuracy*	< ±0.1% BFSL (<±0.2% BFSL over 15,000 PSI)
Stability (1 year)	±0.1% FS, typical
Proof Pressure **	2X Rated Pressure, standard
Burst Pressure	5X or 50,000 PSI, whichever is less
Pressure Cycles	> 100 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability \*\*For higher proof pressures, contact factory

## Electrical Data

Output	4-20mA	0-5V, 1-5V	0-10V, 1-10V	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	15-30VDC	5VDC, Regulated
Current Consumption:	-	< 10mA	< 10mA	< 10mA
Sampling Rate	400Hz	400Hz	400Hz	400Hz
Output Noise:	< 1mV, RMS	< 1mV, RMS	< 1mV, RMS	< 1mV, RMS
Zero Offset	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS
Span Tolerance	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS
Output Load:	0-800 Ohms@10-28VDC	5k Ohms, min.	5k Ohms, min.	5k Ohms, min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes





## Ordering Information\*

<b>AST20HA</b>	A	05000	P	4	E	O	H	000
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**Series Type**

**Process Connection**  
 A = 1/4" NPT Male      F = 7/16"-20 UNF Male [SAE4]\*\*  
 B = 1/8" NPT Male\*\*      P = 1/2" NPT Male\*\*\*  
 C = 1/4" BSPP Male      W = F250C Female Autoclave\*\*\*\*  
 E = 9/16"-18 UNF Male [SAE6]

\*\* Not available under 50PSI (1/8" NPT Male not available in 316L)  
 \*\*\* Pressures up to 15,000 PSI  
 \*\*\*\* Pressures from 10,000 to 45,000 PSI, not available in 316L

**Pressure Range**  
 Insert 5-digit pressure code

**Pressure Unit**  
 B= Bar                      K= kg/cm2                      P= PSI

**Outputs**  
 1= 0.5-4.5V ratiometric      3= 1-5V                      5= 0-10V(3 wire)  
 2= 0-5V(3 wire)                      4= 4-20mA                      G= 1-10V

**Electrical** (for wiring information visit: <http://www.astensors.com/mediacenter.php>)  
 A= 2 ft.(0.6m)                      D= 10 ft.(3.0m)                      R= 6- Pin Bendix  
 B= 4 ft.(1.2m)                      E= Mini DIN 43650C                      Y= M12x1  
 C= 6 ft.(1.8m)                      I= DIN 43650A

**Wetted Material**  
 0=17-4PH      1=316 L (available up to 10,000 PSI)      2= Inconel 718 (consult factory on availability)

**Fail Condition**  
 N= Not Specified                      H= Fail High                      L= Fail Low

**Options** (contact factory for additional options)  
 000= No Options

\*Minimum order quantities may apply to certain configurations, please contact factory for more information.

## Pressure Ranges<sup>+</sup>

PSIG Measurement		Pressure Code
	-14.7 to 25**	V0025**
	0-25	00025
	0-50	00050
	0-100	00100
	0-150	00150
	0-200	00200
	0-250	00250
	0-500	00500
	0-1,000	01000
	0-2,500	02500
	0-5,000	05000
	0-7,500	07500
	0-10,000	10000
	0-15,000	15000
	0-20,000	20000
	0-30,000	30000
	0-45,000	45000

BARG Measurement		Pressure Code
	-1 to 2**	V0002**
	0-2	00002
	0-5	00005
	0-7	00007
	0-10	00010
	0-20	00020
	0-35	00035
	0-50	00050
	0-100	00100
	0-250	00250
	0-350	00350
	0-500	00500
	0-700	00700
	0-1,000	01000
	0-1,400	01400
	0-2,000	02000
	0-3,000	03000

<sup>+</sup>All pressures between 0-25 PSI and 0-45,000 PSI available. <sup>\*\*</sup>Compound pressures up to -14.7 to 500 PSI available. Please consult factory.

# Precision Pressure & Temperature Transmitter



AST20PT



PRESSURE & TEMPERATURE

The AST20PT is a digitally compensated pressure and temperature dual output transmitter, offering measurements from a single process point, reducing process penetration points and leaks. Krystal Bond™ Technology alone offers excellent non-linearity and non-repeatability performance. When it is combined with the ASIC, the AST20PT steps into its own league of high performance pressure sensing at an affordable price.

## Benefits

- ASIC Compensation
- Superb Temperature Performance
- Real Time Thermal Compensation
- Real Time Linearity Correction
- Turndown Capability

## Applications

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

## Environmental Data

Operating <i>Ambient</i> Temperature	-40 to 85°C (-40 to 185°F)
Operating <i>Media</i> Temperature	-55 to 125°C (-67 to 257°F)
<i>Storage</i> Temperature	-50 to 125°C (-58 to 257°F)
<b>Thermal Limits</b>	
Compensated Range	0-70°C (32 to 158°F)
TC Zero	< ± 0.5% FS
TC Span	< ± 0.5% FS
<b>Other</b>	
Shock	100G, 11msec, 1/2 sine
Vibration	10G peak, 20 to 2000Hz
EMI/RFI Protection:	Yes
Rating:	IP-66

## Performance @ 25°C (77°F)

Accuracy*	< ±0.1% BFSL (<±0.2% BFSL over 15,000 PSI)
Stability (1 year)	±0.1% FS, typical
Proof Pressure **	2X Rated Pressure, standard
Burst Pressure	5X or 50,000 PSI, whichever is less
Pressure Cycles	> 100 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability \*\*For higher proof pressures, contact factory

## Electrical Data

Output	4-20mA *	0-5V, 1-5V	0-10V, 1-10V	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	15-30VDC	5VDC, Regulated
Current Consumption:	-	< 10mA	< 10mA	< 10mA
Sampling Rate	400Hz	400Hz	400Hz	400Hz
Output Noise:	< 1mV, RMS	< 1mV, RMS	< 1mV, RMS	< 1mV, RMS
Zero Offset	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS
Span Tolerance	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS	< ± 0.5% FS
Output Load:	0-800 Ohms@10-28VDC	5k Ohms, min.	5k Ohms, min.	5k Ohms, min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes

\*For units with loop-powered 4-20mA output, the pressure loop must be powered or the temperature output will not operate.



# 0-5V / 0-10V / 1-6kHz Pressure Transducer



AST4700



The AST4700 is a competitively priced, high quality stainless steel pressure transducer intended for the use of measurement of liquids and gases. Utilizing Krystal Bond™ Technology. Offering a one piece stainless steel sensing element the AST4700 is free of welds, internal o-rings, and oil fill. This translates into rugged construction, high cycle life, wide range of media compatibility, along with all of the benefits of MEMs technology.

The AST4700 can be packaged with a variety of process connections including NPT, SAE(UNF), and BSP. Zero-based voltage and frequency output signals are all standard choices when selecting this product. Electrical connection options include cable, Hirschmann, and Bendix.

## Benefits

- High Strength Stainless Steel Construction
- Pressures up to 10,000 PSI
- Wide Variety of Configurations
- Suitable for High Shock and Vibration
- CE Certified

## Applications

- Test Stands & Lab Equipment
- Data Loggers
- Pressure Instrumentation
- Hydraulic Systems
- HVAC/R Systems
- Water Management

## Environmental Data

### Temperature

Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 125°C (-40 to 250°F)

### Thermal Limits

Compensated Range	0 to 55°C (32 to 131°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS

### Other

Shock	EN 60068-2-27
Vibration	EN 60068-2-6, 60068-2-64, and IEC 68-2-32
EMI/RFI Protection:	Yes
Rating:	IP-66

## Performance @ 25°C (77°F)

Accuracy*	< ±0.5% BFSL (0.25% and 0.1% optional - some configurations)
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 20,000 PSI (whichever is less)
Pressure Cycles	> 100 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

Output	0-5V (3 or 4 Wire)	0-10V (3 or 4 wire)	Frequency (1-6KHz)
Excitation	10-28VDC	15-28VDC	10-28VDC
Output Impedance	<100 Ohms, Nominal	<100 Ohms, Nominal	10K pull-up
Current Consumption:	<10mA	<10mA	<15mA
Bandwidth	(-3dB): DC to 1kHz	(-3dB): DC to 1kHz	(-3dB): DC to 250 Hz
Output Noise:	<2mV RMS	<2mV RMS	<2mV RMS
Zero Offset:	<±1% of FS	<±1% of FS	<±1% of FS
Span Tolerance:	<±1.5% of FS	<±1.5% of FS	<±1.5% of FS
Output Load:	10k Ohms, min	10k Ohms, min	10k Ohms, min
Reverse Polarity Protection	Yes	Yes	Yes



## Ordering Information

AST4700

A

00100

P

5

A

1

000

### Series Type

### Process Connection\*

- A= 1/4" NPT Male
- B= 1/8" NPT Male
- C= 1/4" BSPP Male
- F= 7/16" - 20 UNF Male

\* "B" and "F" not available under 50PSI ("B" not available in 316L)

### Pressure Range

Insert 5-digit pressure code

### Pressure Unit

- B= Bar
- K= kg/cm2
- P= PSI

### Outputs

- 2= 0-5V (3-Wire)
- 5= 0-10V (3-Wire)
- H= 1-6kHz
- K= 0-5V (4-Wire)
- L= 0-10V (4-Wire)

### Electrical (for wiring information visit: <http://www.astensors.com/mediacenter.php>)

- 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= Bendix 6 Pin

### Wetted Material

- 0= 17-4PH
- 1= 316L

### Options (contact factory for additional options)

000= No Options

## Pressure Ranges<sup>+</sup>

PSIG Measurement	Pressure Code
-14.7 to 25**	V0025**
0-25	00025
0-50	00050
0-100	00100
0-150	00150
0-200	00200
0-250	00250
0-500	00500
0-1,000	01000
0-2,500	02500
0-5,000	05000
0-7,500	07500
0-10,000	10000

BARG Measurement	Pressure Code
-1 to 2**	V0002**
0-2	00002
0-5	00005
0-7	00007
0-10	00010
0-20	00020
0-35	00035
0-50	00050
0-100	00100
0-250	00250
0-350	00350
0-500	00500
0-700	00700

<sup>+</sup>All pressures between 0-25 PSI and 0-10,000 PSI available. <sup>\*\*</sup>Compound pressures up to -14.7 to 500 PSI available. Please consult factory.

# Absolute Pressure Transducer / Transmitter



AST4710



The AST4710 is built for applications requiring absolute pressure measurement of liquids and gases that are compatible with stainless steel. Due to its stainless steel construction, welded housing and high shock and vibration ratings, the AST4710 translates into a rugged, reliable absolute pressure transducer.

Supplied with various pressure port, output and electrical connection options, the AST4710 is well-suited for a variety of applications across many industries.

## Benefits

- High Accuracy
- High Strength Stainless Steel Construction
- Wide Variety of Media Compatibility
- No Internal O-rings
- Rugged Construction
- CE EN61326
- Suitable for High Shock and Vibration

## Applications

- Test Stands
- Energy and Water Management
- Autoclave
- Pressure Instrumentation
- Data Loggers
- Barometric Correctors

## Environmental Data

Temperature	
Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 125°C (-40 to 257°F)
Thermal Limits	
Compensated Range	0 to 70°C (32 to 158°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS
Other	
Shock	EN 60068-2-27
Vibration	EN 60068-2-6, 60068-2-64, and IEC 68-2-32
EMI/RFI Protection:	Yes
Rating:	IP-66

## Performance @ 25°C (77°F)

Accuracy*	< ±0.25% BFSL
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X Rated Pressure
Pressure Cycles	> 10 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

Output	0-50mV (10mV/V)	4-20mA	Voltage (3 Wire)
Excitation	5VDC, typical	10-28VDC	10-28VDC
Output Impedance	5K Ohms, Nominal	>10k Ohms	<100 Ohms, Nominal
Current Consumption:	<5mA	20mA, typical	<10mA
Bandwidth	(-3db): DC to 1kHz	(-3dB): DC to 250 Hz	(-3dB): DC to 1kHz
Output Noise:	N/A	-	<2mV RMS
Zero Offset:	<±2% of FS	<±1% of FS	<±1% of FS
Span Tolerance:	<±2% of FS	<±2% of FS	<±1.5% of FS
Output Load:	>1M Ohm	0-800 Ohms@10-28VDC	10k Ohms, min
Reverse Polarity Protection	N/A	Yes	Yes



## Ordering Information

AST4710

A

A0100

P

4

A

1

000

### Series Type

### Process Connection\*

- A= 1/4" NPT Male
- C= 1/4" BSPP Male
- F= 7/16" - 20 UNF Male (not available under 50PSI)
- J= 1/8" NPT Female (panel mount, option code "066")
- P= 1/2" NPT Male

### Pressure Range

Insert 5-digit pressure code

### Pressure Unit

P= PSI

### Outputs

- A= 10mV/V
- 2= 0-5V (3-wire)
- 3= 1-5V (3-wire)
- 4= 4-20mA (loop powered)
- 5= 0-10V (3-Wire)

### Electrical (for wiring information visit: <http://www.astensors.com/mediacenter.php>)

- 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= Bendix 6 Pin
- Y= M12x1 Eurofast

### Wetted Material

1= 316L

### Options (contact factory for additional options)

- 000= No Options
- 066= Panel Mount (1/8"-27 NPT Female Only)

## Pressure Ranges

PSI Absolute	0-15	Proof PSIA	30	Burst PSIA	75	Pressure Code	A0015
	0-30		60		150		A0030
	0-50		100		250		A0050
	0-100		200		500		A0100
	0-200		400		1000		A0200
	0-300		600		1500		A0300



# Submersible Liquid Level Sensors



AST4500

AST4510



The AST4500 and AST4510 submersible liquid level sensors are approved to **UL/cUL913 (CSA 157) Class I Div 1, Groups C and D** for use in intrinsically safe areas with an approved barrier. For pressure ranges from 0-1 to 0-100 PSI that require a wide range of media compatibility, the submersible series is an excellent solution to level monitoring for indoor and outdoor applications.

The AST4500 and AST4510 level sensors are completely sealed for submersion, yet vented through the cable to correct for barometric pressure changes. The welded housing is tested in-house via a helium leak tester to ensure proper protection. The conductors of the cable are also isolated from the outside environment to keep the sensor operational for long-term use.

With a removable nose cone, the AST4500 and AST4510 series can also be installed outside of the tank through a 1/4" NPT pipe connection. In this configuration, the sensor continuously monitors the tank level through a threaded connection outside the tank, yet remains fully submersible for applications with flood prone environments or severe wash-down conditions. Available with voltage or 4-20mA output signals, AST can provide a cost effective solution for level monitoring for a variety of applications.

## Environmental Data

### Temperature

Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 100°C (-40 to 212°F)

### Thermal Limits

Compensated Range	0 to 55°C (32 to 131°F)
TC Zero	<±1.5% of FS (<±2.5%, typ. for 1PSI)
TC Span	<±1.5% of FS (<±2.5%, typ. for 1PSI)

### Other

Shock	100G, 11 msec, 1/2 sine
Vibration	10G peak, 20 to 2000 Hz.
EMI/RFI Protection:	Yes
Rating:	IP-68

## Benefits

- High Strength Stainless Steel Construction
- No Internal O-rings
- Wide Operating Temperature
- Pressures up to 100 PSI
- Low Static and Thermal Errors
- Unparalleled Price and Performance
- New Conduit Fitting at Electrical Connection
- Survives Harsh Environments
- Compatible with Wide Variety of Liquids
- EMI/RFI Protection
- ABS (American Bureau of Shipping) Approved

## Applications

- Ground Water Level
- Bio-Fuels
- Salt Water Holding Tanks
- Gasoline & Diesel Fuel Tanks
- Fertilizer Tanks
- Earthen & Concrete Dams
- Irrigation Equipment
- Ballast Tanks
- Oil Tanks
- Waste Water Canals

## Performance @ 25°C (77°F)

Accuracy*	< ±0.25% BFSL (<±0.5% BFSL for 0-1 PSI)
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 1,250 PSI (whichever is less)
Pressure Cycles	> 50 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

Output	4-20mA	1-5VDC
Excitation	10-28VDC	10-28VDC
Output Impedance	>10k Ohms	<100 Ohms, Nominal
Current Consumption:	20mA, typical	<10mA
Bandwidth	(-3dB): DC to 250 Hz	(-3dB): DC to 1kHz
Output Noise:	-	<2mV RMS
Zero Offset:	<±1% of FS (<±4% 1PSI)	<±1% of FS (<±4% 1PSI)
Span Tolerance:	<±2% of FS (<±4% 1PSI)	<±1.5% of FS (<±4% 1PSI)
Output Load:	0-800 Ohms@10-28VDC	10k Ohms, min
Reverse Polarity Protection	Yes	Yes



# Flush Diaphragm Submersible Liquid Level Sensor



AST4520



The AST4520 Flush Submersible liquid level sensor is the cost effective solution for level monitoring of turbulent tanks with viscous media. Approved to **UL/cUL913 Class 1 Division 1 IS, Groups C and D with an approved barrier**, the product ensures a safe, reliable source for level measurement.

The AST4520 is offered with pressure ranges from 0-2.5 to 0-15 PSIG. The AST4520 steel cage front end design allows for proper flow of media while keeping the sensor at the bottom of the tank or well. With an engraved stainless steel housing and Kynar PVDF cable, this sensor is built to handle the toughest environments.

## Benefits

- Engraved 316L Housing
- Protective Steel Cage Assembly
- Kynar PVDF Cable
- Compatible with Wide Variety of Chemicals
- Ruggedly Designed for Harsh Waste Water Environments
- Suitable for Waste, Salt, Brackish, or Fresh Water Systems
- EMI/RFI and Reverse Polarity Protection
- Lightning and Surge Protection
- Competitively Priced for OEM Applications
- ABS (American Bureau of Shipping) Approved

## Applications

- Lift Stations - Wastewater, Storm Water, Industrial Applications
- Food Tanks
- Viscous Media Tanks
- Heavy Oil

## Environmental Data

### Temperature

Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 100°C (-40 to 212°F)

### Thermal Limits

Compensated Range	0 to 55°C (32 to 131°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS

### Other

Shock	100G, 11 msec, 1/2 sine
Vibration	10G peak, 20 to 2000 Hz.
EMI/RFI Protection:	Yes
Rating:	IP-68

## Performance @ 25°C (77°F)

Accuracy*	< ±0.25% BFSL
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 1,250 PSI (whichever is less)
Pressure Cycles	> 50 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

	4-20mA	1-5VDC
Output	4-20mA	1-5VDC
Excitation	10-28VDC	10-28VDC
Output Impedance	>10k Ohms	<100 Ohms, Nominal
Current Consumption:	20mA, typical	<10mA
Bandwidth	(-3dB): DC to 250 Hz	(-3dB): DC to 1kHz
Output Noise:	-	<2mV RMS
Zero Offset:	<±1% of FS (<±4% 1PSI)	<±1% of FS (<±4% 1PSI)
Span Tolerance:	<±2% of FS (<±4% 1PSI)	<±1.5% of FS (<±4% 1PSI)
Output Load:	0-800 Ohms@10-28VDC	10k Ohms, min
Reverse Polarity Protection	Yes	Yes

## Ordering Information

<b>AST4520</b>	Y	00005	P	4	X	1	353
<b>Series Type</b>							
<b>Process Connection</b> Y= G1/2 with steel cage T= G1/2 with out steel cage							
<b>Pressure Range</b> Insert 5-digit pressure code							
<b>Pressure Unit</b> H= Inches H2O P= PSI							
<b>Outputs</b> 5= 1-5V 4= 4-20mA (2 wire loop powered)							
<b>Electrical</b> <i>(for wiring information visit: <a href="http://www.astensors.com/mediacenter.php">http://www.astensors.com/mediacenter.php</a>)</i> X= Optional Length (see options)							
<b>Wetted Material</b> 1 = 316L / 304 SS / Kynar							

**Options** Cable Lengths:  
 353 = 25 ft. (7.62 m)  
 354 = 50 ft. (15.24 m)  
 355 = 75 ft. (22.86 m)

## Pressure Ranges

AST4520	Gauge PSIG	Pressure Code	Feet of Water Column @ 4°C (approx.)
	0-15	00015	34.60
	0-10	00010	23.07
	0-7.5*	00208*	17.30
	0-5	00005	11.53
	0-2.5*	00069*	5.77

\*2.5 and 7.5 PSI Sensor must be ordered in inches of H<sub>2</sub>O.

# Pressure & Temperature Submersible Transmitter



AST45PT



PRESSURE & TEMPERATURE

- The AST45PT is a combined pressure and temperature transmitter for accurate liquid level measurement.
- For pressure ranges from 0-1 to 100 PSI that require a wide range of media compatibility, the AST45PT submersible series is an excellent solution to monitor level and temperature for indoor and outdoor applications.

## Benefits

- High Strength Stainless Steel Construction
- No Internal O-rings
- Wide Operating Temperature
- Pressures up to 100 PSI
- Low Static and Thermal Errors
- Unparalleled Price and Performance
- Rugged Design
- New Conduit Fitting at Electrical

## Connection

- Compatible with Wide Variety of Liquids
- EMI/RFI Protection

## Applications

- Ground Water Level Measurement
- Earthen & Concrete Dams
- Liquid Tanks
- Irrigation
- Environmental Sites
- Building Automation Controls
- Waste Water Canals

## Environmental Data

Temperature	
Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 100°C (-40 to 212°F)
Thermal Limits	
Compensated Range	0 to 55°C (32 to 131°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS
Other	
Shock	100G, 11 msec, 1/2 sine
Vibration	10G peak, 20 to 2000 Hz.
EMI/RFI Protection:	Yes
Rating:	IP-68

## Performance @ 25°C (77°F)

Accuracy (Pressure)*	< ±0.25% of FS BFSL
Accuracy (Temp.)*	< ±1.0% of FS BFSL
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 1,250 PSI (whichever is less)
Pressure Cycles	> 50 Million

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

Output	4-20mA *	1-5V
Excitation	10-28VDC	10-28VDC
Current Consumption:	-	< 10mA
Sampling Rate	400Hz	400Hz
Output Noise:	< 1mV, RMS	< 1mV, RMS
Zero Offset	< ± 0.5% FS	< ± 0.5% FS
Span Tolerance	< ± 0.5% FS	< ± 0.5% FS
Output Load:	0-800 Ohms@10-28VDC	5k Ohms, min.
Reverse Polarity Protection	Yes	Yes

\*For units with loop-powered 4-20mA output, the pressure loop must be powered or the temperature output will not operate.

## Ordering Information

<b>AST45PT</b>	1	L	00005	P	4	X	1	N	065
<b>Series Type</b>									
<b>Temperature Output Range</b>									
1= -40 to 85°C (-40 to 185°F)									
2= -40 to 125°C (-40 to 257°F)									
3= 0 to 70°C (32 to 158°F)									
4= -55 to 125°C (-67 to 250°F)									
5= -18 to 93°C (0-200°F)									
<b>Configuration Interface</b>									
L= Cone (removable)									
<b>Pressure Range</b>									
Insert 5-digit pressure code									
<b>Pressure Unit</b>									
H= Inches H2O                      P= PSI									
<b>Outputs</b>									
3= 1-5V                                      4= 4-20mA									
<b>Electrical</b> (for wiring information visit: <a href="http://www.astensors.com/mediacenter.php">http://www.astensors.com/mediacenter.php</a> )									
N= Conduit fitting,                      P= Conduit fitting,                      X= Optional Length									
Cable 6 ft.                                      Cable 10 ft.                                      (see options)									
<b>Wetted Material</b>									
1= 316L / 304 SS/ Hytel Cable									
<b>Fail Condition</b>									
N= Not Specified                      H= Fail High                      L= Fail Low									
<b>Options</b> Cable Lengths:									
140= 15 ft. (4.6 m)                      004= 35 ft. (10.7 m)                      003= 100 ft. (30.5 m)									
075= 20 ft. (6.1 m)                      130= 40 ft. (12.2 m)                      050= 150 ft. (45.7 m)									
074= 25 ft. (7.6 m)                      065= 50 ft. (15.2 m)									

## Pressure Ranges

	Gauge PSIG	Pressure Code	Feet of Water Column @ 4°C (approx.)
AST45PT	0-100	00100	230.67
	0-50	00050	115.33
	0-30	00030	69.20
	0-20	00020	46.13
	0-15	00015	34.60
	0-10	00010	23.07
	0-7.5*	00208*	17.30
	0-5	00005	11.53
	0-2.5*	00069*	5.77
	0-1	00001	2.31

\*2.5 and 7.5 PSI Sensor must be ordered in inches of H<sub>2</sub>O.

# Low Pressure Differential Transmitter



AST5100



The AST5100 Wet - Wet Differential Pressure transmitter is your accurate pressure sensing device for low differential pressure. With a differential pressure range as low as 0 to 5" water column (12.5mbar), this product can be used to measure flow across an orifice, differential across a filter, tank level, or gauge pressure. Using LVDT technology and AST's advanced electronics, the AST5100 delivers accurate, repeatable measurements.

## Applications

- Liquid Level Control including Bubbler systems
- Climate Control
- Energy Management
- Air-fuel Ratio including Measurement for Furnaces
- Vapor Recovery
- Leak Detection
- Air or liquid Filtration
- Flow Measurement

## Benefits

- Accurate Low Pressure Measurement
- Excellent Repeatability
- Wide Range of Liquids and Gases including: Water, Natural Gas, Hydrocarbon Fuels, Air and Non-Corrosive Gases

## Wetted Materials

- Nickel Alloy 52, Ni-Span C, Viton, 304 Stainless Steel, Aluminum 6061, RoHS Solder, Loctite 680 (meets NSF61)

## Installation Guidelines

The AST5100 must be mounted on a flat surface within  $\pm 15^\circ$  to the ideal  $0^\circ$  plane to maintain specifications. Do not Overtighten the pressure connections or insert any objects in P1 or P2 to avoid damaging the sensing element. When using isolation valves, both should be mounted close to the sensor. For liquid level and wet applications, install bleed screw adapters close to P1 and P2 so that trapped air can be purged if needed. For optimum performance, always make sure pressure is equalized within the pressure range chart ranges. The AST5100 has asymmetric protection on P1 and P2.

## Environmental Data

### Temperature

Operating	-40 to 80°C (-40 to 176°F)
Storage	-40 to 100°C (-40 to 212°F)

### Thermal Limits

Compensated Range	0 to 55°C (32 to 131°F)
TC Zero	$< \pm 1.5\%$ of FS
TC Span	$< \pm 1.5\%$ of FS

## Performance @ 25°C (77°F)

Accuracy	$< \pm 1.0\%$ of FS
Stability (1 year)	$\pm 0.5\%$ FS, typ
Burst Pressure	2000 PSI
Pressure Cycles	$> 100,000$ Cycles

\*Accuracy includes non-linearity, hysteresis & non-repeatability

## Electrical Data

	4-20mA	0-5V Three Wire
Output	4-20mA	0-5V Three Wire
Excitation	10-28VDC	10-28VDC
Output Change with Input Voltage Change	-	$< 0.1\%$ from 10 to 32 VDC
Current Consumption:	-	$< 10\text{mA}$
Bandwidth	5Hz	5Hz
Output Noise:	$< 0.0035\text{mA}$ , RMS	$< 1\text{mV}$ , RMS
Zero Offset:	$< \pm 1\%$ FS	$< \pm 1\%$ FS
Span Tolerance:	$< \pm 1.5\%$ FS	$< \pm 1.5\%$ FS
Output Load:	0-800 Ohms@10-28 VDC	5k Ohms, min.
Reverse Polarity	Yes	Yes



## Ordering Information

**AST5100**

**J**

**00050**

**H**

**4**

**Y**

**5**

**000**

**Series Type**

**Process Connection**

J= 1/8" NPT Female

**Pressure Range**

See Chart

**Pressure Unit**

H= Inches H<sub>2</sub>O

P= PSI

**Outputs**

2= 0-5V 3-wire

4= 4-20mA (2 wire loop powered)

**Electrical** (for wiring information visit: <http://www.astensors.com/mediacenter.php>)

Y= M12x1

**Wetted Material**

5= Nickel Alloy 52, Ni-Span C, Viton, 304 Stainless Steel, Aluminum 6061, RoHSSolder, Loctite 680 (meets NSF61)

**Options**

000= No Options

The over-pressure specification is the maximum pressure the AST5100 can see without damage. Any pressure applied over the listed numbers will likely damage the sensor and will, at minimum, cause a permanent zero shift. Over-pressure between 2X span and the numbers listed applied to port P1 will likely cause no permanent harm. Over-pressure of between 2X span and the numbers listed applied to port P2 may cause a temporary zero shift. To recover from a zero shift caused by negative over-pressure to P2 within the listed limits, apply a positive over-pressure P1 to just under the listed limit for a duration of 5 minutes. Remove the over-pressure and check the zero with no pressure applied. If the zero has not recovered, repeat the positive over-pressure and recheck zero. If it has not recovered after the second try, the zero has been permanently shifted. Contact the factory.

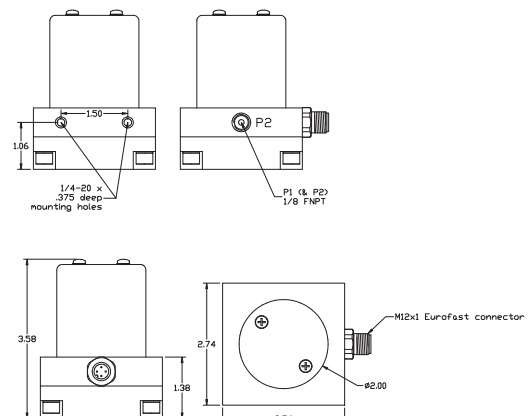
Mating PUR 22 AWG Cable Assembly	
Part Number	Cable Length
A10089	4 feet (1 m)
A10090	10 feet (4 m)

Pins	Conductor Colors	0-5V 3-wire	4-20mA
Pin 1	Brown	+V	+V
Pin 2	White	N/C	N/C
Pin 3	Blue	-V	-V
Pin 4	Black	V Out	N/C

### Pressure Ranges

Differential Pressure	Pressure Code	Proof Pressure (P1>P2)	Proof Pressure (P2>P1)
0-5 inch H <sub>2</sub> O (12.5 mbar)	00005H	5 PSI	3 PSI
0-10 inch H <sub>2</sub> O (25 mbar)	00010H	5 PSI	3 PSI
0-20 inch H <sub>2</sub> O (50 mbar)	00020H	8 PSI	5 PSI
0-50 inch H <sub>2</sub> O (125.5 mbar)	00050H	15 PSI	10 PSI
0-100 inch H <sub>2</sub> O (249 mbar)	00100H	35 PSI	25 PSI
0-200 inch H <sub>2</sub> O (498 mbar)	00200H	35 PSI	25 PSI
0-15 PSID (1034 mbar)	00015P	75 PSI	50 PSI

### Dimensional Data



# Differential Pressure (DP) Transducer



AST5400



The AST5400 differential pressure (DP) transducer can measure line pressures up to 5,000 PSI with a turndown ratio of 15 to 1. Using Krystal Bond™ Technology, the AST5400 contains no silicone oil, O-rings, or welds. This MEMS pressure sensor technology completely isolates the media to the pressure ports, thus eliminating contamination risk. The low strain level on the diaphragm results in accurate, repeatable measurements. The AST5400 can be used to measure differential pressure across a filter, monitor level in a sealed or vented tank, or calculate flow across an orifice plate.

With its digital compensation, this series offers excellent linearity and performance over temperature. The electronics now offer a fail safe condition on the output signal. If the transducer were to experience a fault condition, the transducer can be programmed to rail the output signal to 10% below the minimum or 10% above maximum output signal to notify the user of an issue and protect the system from undesirable conditions. The AST5400 also offers excellent flexibility in its configuration, allowing for a variety of wetted materials and pressure ports.

## Benefits

- Krystal Bond™ Technology
- ASIC compensation
- Turn-down capability
- Both or either pressure port can see full line pressure - No expensive balancing valves required!
- Line pressure up to 5,000 PSI (350 Bar)
- Smart electronics with failure condition protection
- Wide variety of materials for a variety of media

## Applications

- Aerospace
- Building Automation
- Fuel Systems
- Hydraulics
- Hydrogen (316L only)
- Labs / Metrology
- Medical
- Military Vehicles
- HVAC/R Systems
- Desalination Equipment (Inconel718 Recommended)

## Environmental Data

### Temperature

Operating	-20 to 70°C (-4 to 158°F)
Storage	-50 to 125°C (-58 to 257°F)

### Thermal Limits

Compensated Range	-20 to 70°C (-4 to 158°F)
-------------------	---------------------------

### Other

Shock	100G, 10msec, 1/2 sine
Vibration	10G peak, 20 to 2000Hz
EMI/RFI Protection:	Yes
IP Class:	IP-66; IP-67 Optional

## Performance @ 25°C (77°F)

Total Error Band*	<± 1% of Line Pressure
Maximum Line Pressure	2,000 PSI (140 Bar)
Proof Pressure	2X Line pressure**
Burst Pressure	5X Line pressure
Pressure Cycles	> 100 Million

\*Typical Values shown; Combined effects of Zero Offset, Span Tolerance, Thermal Zero, Thermal Span, Non-linearity, Repeatability and Hysteresis. \*\*For higher line pressures, contact factory.

## Electrical Data

Output	4-20mA	1-5V, 0-5V, 1-6V	1-10V, 0-10V	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	15-28VDC	5VDC, Regulated
Current Consumption	-	< 15mA	< 15mA	< 15mA
Sampling Rate	200Hz	200Hz	200Hz	200Hz
Output Noise	< 1mV, RMS	< 1mV, RMS	< 1mV, RMS	< 1mV, RMS
Output Load	0-800 Ohms@10-28VDC	5k Ohms, min.	5k Ohms, min.	5k Ohms, min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes

## Ordering Information

5400    F    01000    P    5    Y    O    0500    H    00

### Series Type

### Process Connection

A= 1/4" NPT Male    F= 7/16-20 UNF Male  
 B= 1/8" NPT Male    R= 7/16-20 UNF Female

### Line Pressure

Insert 5-digit code chart

### Pressure Unit

B= Bar                      K= kg/cm<sup>2</sup>                      P= PSI

### Outputs

1= 0.5-4.5V ratiometric                      4= 4-20mA (2 wire loop powered)                      6= 1-6V  
 2= 0-5V    5= 0-10V    G= 1-10V  
 3= 1-5V

### Electrical (for wiring information visit: <http://www.asfsensors.com/mediacenter.php>)

A= 2 ft. (0.6m)                                      D= 10 ft. (3.0m)                                      L= Conduit 2 ft. (0.6m)  
 B= 4 ft. (1.2m)                                      E= Mini DIN 43650C                                      R= 6 Pin Bendix  
 C= 6 ft. (1.8m)                                      I= DIN 43650A                                      Y= M12 Eurofast

### Wetted Material

0= 17-4PH                      1= 316L                                      2= Inconel 718

### Differential Pressure Range

Insert 4-digit code from chart

### Fail Condition

N= Not Specified                      H= Fail High                                      L= Fail Low

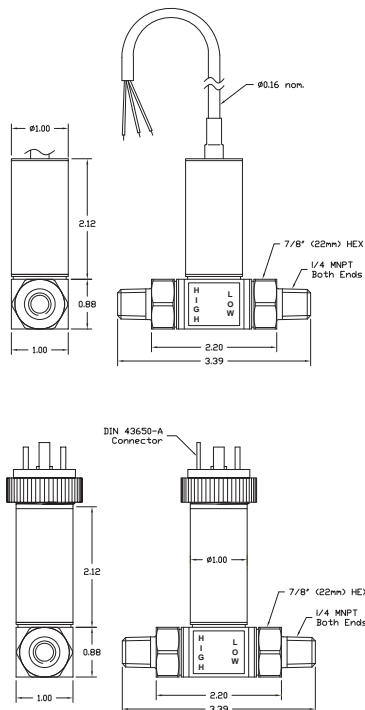
### Options (contact factory for additional options)

000= No Options

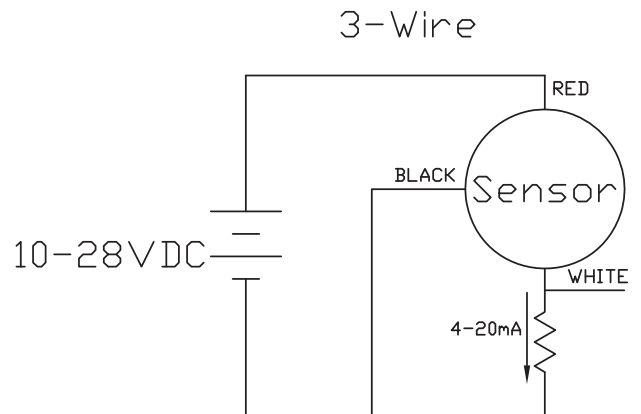
		Line Pressure*							
		50	100	300	500	1000	2000	5000	
Differential Pressure Range* (PSID)	CODE	00050	00100	00300	00500	01000	02000	05000	
	10	0010	✓	✓					
	20	0020	✓	✓	✓				
	50	0050		✓	✓	✓			
	75	0075		✓	✓	✓	✓		
	100	0100		✓	✓	✓	✓		
	150	0150			✓	✓	✓		
	200	0200			✓	✓	✓	✓	
	300	0300			✓	✓	✓	✓	
	500	0500				✓	✓	✓	✓
750	0750					✓	✓	✓	
1000	1000						✓	✓	
2000	2000						✓	✓	
5000	5000							✓	

\*Other pressures available; contact factory.

## Dimensional Data



## 4-20mA Wiring Schematic



# 9V Digital Pressure Gauge



AccuGauge AG100



The AG100 series is a 9V digital pressure gauge featuring multiple measurement units, min/max readings, selectable tare/zero and an automatic power off to conserve battery power. Also, a backlight provides improved visibility under marginal lighting conditions.

The AG100 will operate with any liquid or gas that is compatible with 17-4PH stainless steel. Please consult the factory for other available wetted materials.

The design of this one-piece sensing element contains no silicone oil, welds or internal O-rings. The AG100 is ideal for oxygen service, hydrogen\* tanks and other critical applications where fluid filled gauges cannot be used.

## Environmental Data

### Temperature

Media	-55 to 125°C (-67 to 257°F)
Operating (Ambient)	-10°C to 70°C (14°F to 158°F)
Storage	-10°C to 85°C (14°F to 185°F)

### Thermal Limits

Compensated Range	0°C to 55°C (32°F to 131°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS

## Pressure Measurement

PSIG Pressure	Pressure Code
-14.7 to 50	V0050
-14.7 to 100	V0100
-14.7 to 250	V0250
-14.7 to 500	V0500
-14.7 to 1,000	V1000
0 to 2,500	02500
0 to 5,000	05000

## Performance @ 25°C (77°F)

Pressure Range	A number of preset ranges are available
Measurement Units	PSI, BAR, kg/cm, ATM, InH2O, InHg
Accuracy	<±0.5% BFSL (Includes Non-linearity, Hysteresis and Non-repeatability)
Stability (1 year)	±0.25% FS (typical)
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 20,000 PSI whichever is less
Pressure Cycles	>100 Million

## Specifications

Display Update Rate	2 samples per second
Power	9 Volt Alkaline Battery
Automatic Power Off	1 Hour
Battery Life	4000 Hours Operation (typical)
Protection Rating	NEMA 4, IP 65
Instrument Case	Poly carbonate

## Ordering Information

AG100

A

V0100

### Series Type

### Process Connection

A= 1/4" NPT Male  
J= 1/8" NPT Female

### Pressure Measurement

Insert 5-digit pressure code

## AG100 Operating Instructions Rev 1.1

### ON OFF

Press and release this button to turn the AccuGauge ON. Press and hold this button to turn the AccuGauge OFF. When the AccuGauge is ON press and release this button to turn on the backlight. The AccuGauge will automatically turn OFF after one hour to conserve battery power.

### BACKLIGHT

The backlight of the AccuGauge will illuminate the LCD display for 10 seconds anytime one of the four buttons is pressed. To turn on the backlight without changing the display, press and release the ON/OFF button.

### UNITS

Press the UNITS button to cycle through the units of measurement the AccuGauge can display. The AccuGauge can measure pressure in PSI, BAR, Kg/cm<sup>2</sup>, Inches Hg, Inches H<sub>2</sub>O and ATM. The unit of measurement can be changed at any time and will not affect the operation of the AccuGauge.

### RELATIVE PRESSURE

Press and release the ZERO button to place the AccuGauge in relative pressure mode. The REL symbol will be displayed at the top of the LCD to indicate the gauge is operating in relative pressure mode. The display will rezero at the applied pressure that was acting on the Gauge at the moment the button is pressed and display pressure readings +/- relative to that pressure. Press this button again to return to GAUGE mode of operation, which displays pressure relative to the local pressure.

### ZERO

Over the course of time it may become necessary to reset the AccuGauge to zero. Press and hold the ZERO button until the REL symbol appears and disappears and the display reads zero pressure in the selected units of measurement. Release the ZERO button and the display will read zero pressure in the current units selected.

### MIN MAX

The MIN MAX button allows the user to read the minimum and maximum pressure the AccuGauge has detected during the time that the gauge has been on. These readings are not saved and reset every time the gauge is powered off. Press the MIN MAX button once and the MIN symbol will be displayed along with the minimum pressure, press the MIN MAX button again and the MAX symbol will be displayed along with the maximum pressure. Press the MIN MAX button again and the MAX symbol will disappear and the gauge will display the current pressure. Press and hold the MIN MAX button to reset the minimum and maximum pressure readings.

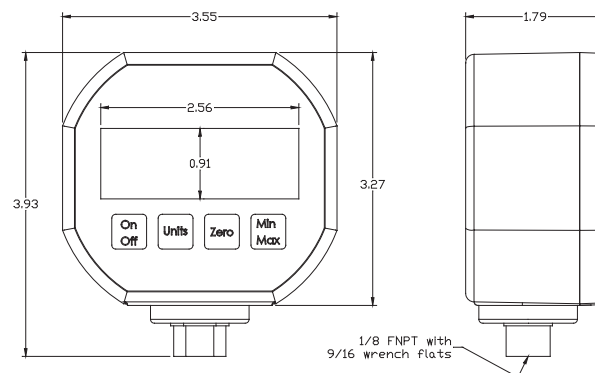
### LOW BATTERY

The AccuGauge has a battery condition indicator in the upper left corner of the LCD display. The indicator is composed of a battery symbol and four vertical bars. As the battery discharges the vertical bars will disappear from right to left. When all four bars have disappeared the battery is nearly discharged. As a final warning the symbol LOW BAT will be displayed and indicates the battery is nearing complete discharge and should be changed immediately. For best results replace the battery immediately. Use only Alkaline or Lithium 9V batteries.

### BATTERY REPLACEMENT

(NOTE: DO NOT open the AccuGauge unless it is necessary to change the Battery.) To replace the AccuGauge's Battery, use a Phillips Head screwdriver to remove the four screws from the back plate of the gauge. Unplug the battery cable from the battery terminals. Remove the battery from the battery holder. Put a new battery into the holder, ensuring that it is firmly in place. Plug the battery cable into the terminals of the battery. Make sure that the polarity is correct. Replace the cover firmly in place. Replace the four screws.

## Dimensional Data



# 4-20mA Pressure Sensor with Display



AccuGauge AG200



The AG200 is a media-isolated, digital pressure gauge that offers a 4-20mA output signal with a large LCD display.

Utilizing Krystal Bond™ Technology, the AG200 provides the same quality and performance as AST's sensors, with a local readout. The AG200 also has the option of zero and span calibration, allowing the user to reset the gauge, or adjust the calibration points to their exact needs.

## Specifications

Loop Current Update Rate	32 times per Second
Display Update Rate	3 times per second
Power	7.5 to 32VDC
Output	4-20mA loop powered
Reverse Polarity Protection	Yes

## Environmental Data

### Temperature

Media	-55 to 125°C (-67 to 257°F)
Operating (Ambient)	-10°C to 70°C (14°F to 158°F)
Storage	-10°C to 85°C (14°F to 185°F)

### Thermal Limits

Compensated Range	0°C to 55°C (32°F to 131°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS

## Performance @ 25°C (77°F)

Pressure Range	A number of preset ranges are available
Measurement Units	PSI, BAR, kg/cm, ATM, InH2O, InHg, mAmps
Accuracy	<±0.5% BFSL (Includes Non-linearity, Hysteresis and Non-repeatability)
Stability (1 year)	±0.25% FS (typical)
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 20,000 PSI whichever is less
Pressure Cycles	>100 Million

## Pressure Ranges

PSIG Pressure	Pressure Code
0-50	00050
0-100	00100
0-250	00250
0-500	00500
0-1,000	01000

## Ordering Information

AG200 A 00100 P 4 E O 000

### Series Type

### Process Connection

A= 1/4" NPT Male  
J= 1/8" NPT Female

### Pressure Range

Insert 5-digit pressure code

### Pressure Unit

P= PSI

### Outputs

4= 4-20mA (2 wire loop powered)

### Electrical

E= Mini DIN 43650C

### Wetted Material

O= 17-4PH

### Options

000= No Options

## AG200 Operating Instructions

### Loop Voltage

Select a loop power supply voltage and total loop resistance so that when the loop current is 20 mA, the gauge will have at least 7.5 VDC at its terminals. Too large a loop resistance will cause the gauge output to "limit" or saturate before reaching its full 20 mA output.

The minimum loop supply voltage may be calculated from the formula:  
 $V_{min} = 7.5V + (20mA \times \text{Total loop resistance})$ .

If the loop voltage drops too low, the AG200 will display the **LOW LOOP** icon. When the **LOW LOOP** icon is displayed, all calibration functions, described below, are disabled.

### Normal Operation

Under normal operation the AG200 displays the pressure in the selected units and outputs 4mA to 20mA current proportional to the pressure. The AG200 outputs 4mA for zero or low end pressure, and 20mA for full scale or high end pressure. If the pressure reading goes outside the specified range, the AG200 will output as low as 3.5mA or as high as 24mA loop current.

Press the **UNITS** button to change the displayed units. The AG200 displays PSI, bar, Atm, Kg/cm<sup>2</sup>, InHg, InH<sub>2</sub>O and mA loop current. The **UNITS** button does not affect the current output.

### Generating a Test Current

When the **TEST** button is held depressed, the display and loop current are switched to a test level. This test mode will allow setup and testing of the current loop by switching to this test level whenever desired without having to alter the system pressure. To change the test output level, press the **CALIB** button, while the **TEST** button is depressed. Each time the **CALIB** button is pressed, the test level current increases by 2mA.

### Zero Pressure Calibration

The gauge port must be open with no pressure or vacuum applied. Press the **ZERO** and **CALIB** buttons together for about 3 seconds to zero the unit. The buttons can be released when the gauge shows a zero pressure reading. Note: It is best to perform this step when pressure units (not mA) are shown on the display. The zero calibration is retained after the unit is turned off.

### Span Pressure Calibration

Span calibration should only be attempted if the user has access to a pressure reference of known accuracy. The calibration equipment should be at least four times the gauge accuracy. Zero calibration must be done before span calibration. To perform span perform the following steps:

1. Choose the calibration units by using the **UNITS** button.
2. Hold the **CALIB** button for about 3 seconds.
3. The display will alternate between CAL and the required calibration pressure. For instance, if the unit needs to be calibrated at 500 PSI, the display will show:

**CAL** then **500**

4. Connect the unit to a pressure source and apply the pressure indicated on the display.
5. Press and hold the **CALIB** button for about 3 seconds to complete the calibration. If the calibration is successful, the display will show:

**DONE**

If there is an error, the display will show:

**ERR**

An error condition will occur if the user tries to calibrate the unit beyond +/- 10% of the factory calibration.

- To cancel the calibration at any point during the procedure, press and release the **CALIB** button.
- Factory calibration can be restored by entering the calibration state, as described in step 2, then holding the **ZERO** button for about 3 seconds. The unit will display:

**FAC**

to indicate that factory calibration has been restored.

### Current Output Calibration

The AG200 has been set at the factory to be in agreement between the displayed value and the 4-20mA loop current. These settings should not normally be adjusted. If adjustment is necessary, perform the following steps:

1. Choose the mA display units, using the **UNITS** button.
2. Connect the loop to an accurate current measurement device.
3. Hold the **CALIB** button for about 3 seconds.
4. The display will alternate between CAL and 4.00mA:

**CAL** then **4.00**

the loop current will be set to 4.00mA.

5. Use the **TEST** button to decrease the output loop current by 0.01mA. Use the **UNITS** button to increase the output loop. Note that even though the output loop current will change, the display will not.

6. To accept the calibration at 4.00mA, press and hold the **CALIB** button for about 3 seconds, until the display changes, as described in step 7. You can also cancel any changes you made, by pressing and releasing the **CALIB** button.

7. The display will now alternate between CAL and 20.00mA:

**CAL** then **20.00**

the loop current will be set to 20.00mA.

8. Again, use the **TEST** button to decrease the output loop current by 0.01mA. Use the **UNITS** button to increase the output loop current by 0.01mA. Note that even though the output loop current will change, the display will not.

9. To accept the calibration at 20.00mA, press and hold the **CALIB** button for about 3 seconds, until the display shows:

**DONE**

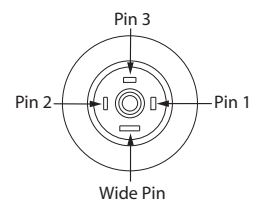
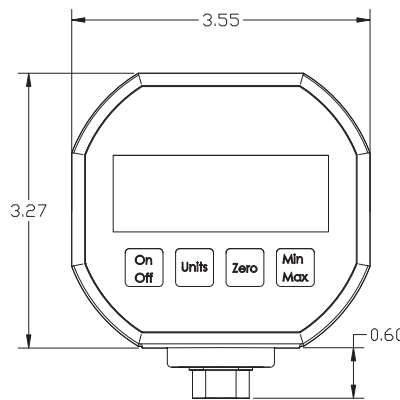
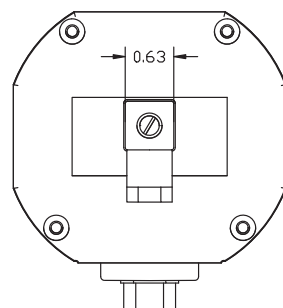
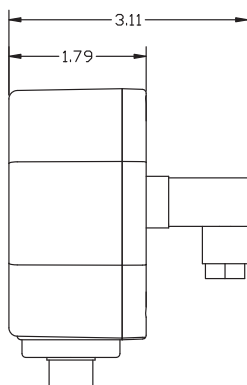
You can also cancel any calibration changes you made, by pressing and releasing the **CALIB** button.

Factory calibration of the loop current can be restored by entering the loop current calibration state, as described in step 3, then holding the **ZERO** button for about 3 seconds. The unit will display:

**FAC**

to indicate that factory calibration has been restored.

## Dimensional Data



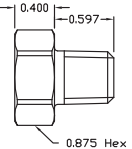
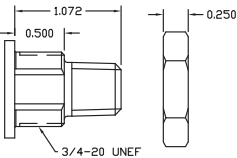
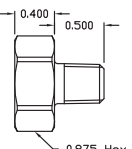
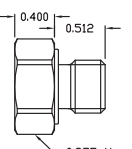
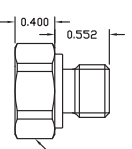
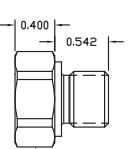
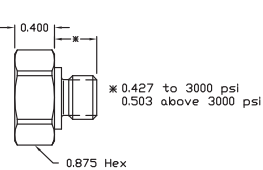
Pin 2	Pin 3
-V	+V

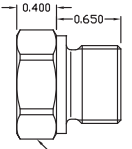
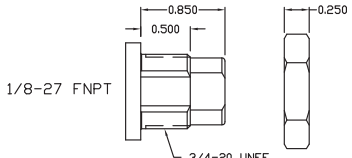
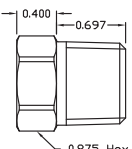
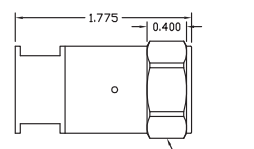
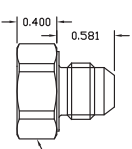


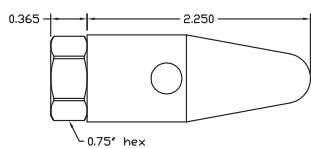
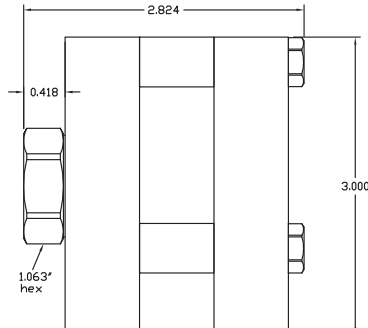
# Dimensional Data



## Process Connections

Threaded Connections		Letter
1/4" NPT Male		A
1/4" NPT Male (Panel Mount)		A
1/8" NPT Male		B
1/4 BSPP Male		C
G 1/4 Male		D
9/16-18 UNF Male		E
7/16-20 UNF Male		F

Threaded Connections		Letter
M20x1.5 Male		H
1/8" NPT Female (Panel Mount)		J
1/2" NPT Male		P
F250C Female Autoclave		W
9/16-18 UNF with 37° Flare (option code 153)		X

Submersible Ends		Letter
Submersible Nose Cone		L
Steel Cage		Y

# Dimensional Data



## Electrical Connections

Connector Options		Letter
DIN 43650 C		E
Packard Metripack 150		F
4 Pin Molex (millivolt / no housing only)		G
DIN 43650 A		I
DT04 3-Pin		K
6 Pin Bendix		R
M12x1		Y
DT04 4-Pin		Z

Cable Options		Letter(s)
Cable - Standard		A, B, C, D
Cable - AST4100		A, B, C, D
Conduit with Cable - Submersible		N, P, X
Conduit with Cable - Standard		L, M, N, P
Conduit with 18AWG Wires (explosion proof only)		T, U, W

## Housings

Models	Max Dia.	Max Length	
AST4000 AST4200 AST4500 AST4510	.875"	1.75"	
AST4520 AST20HA AST20PT AST4700 AST4710 AST47XX	1.00"	2.25"	
AST4100	0.875"	1.25"	

# Approvals & Standards

	ISO 9001:2008	Quality Management System		ExnALIICT4 ExnALIICT6	China Hazardous Locations
	CSA 30 (FM 3615) Class I and II Division I Groups A, B, C, D, E, F, G	Explosion Proof Pressure Transmitters		ExialIBT3 ExialICT6	China Hazardous Locations
	ANSI 12.27.01 - 2003	Single Seal Approved for Canadian Pressure Equipment		CE EN61326	Electrical Interference Testing
	CSA 157 (UL 913) Class I Division 1 Groups C, D	Intrinsically Safe Pressure Transmitters		EN 60068-2-27, EN 60068-2-6, 60068-2- 64, and IEC 68-2-32	Shock and Vibration Testing
	CSA 213 (UL 1203) Class I Division 2 Groups A, B, C, D	Non-Incendive Pressure Transmitters		MIL-S-901D	Grade A, Class II, Type A, nine (9) blow lightweight shock test
	ABS Type Approval	Marine equipment certification		EC 79/2009	Hydrogen Vehicle Certification
				HyWay 2/3 Environmental E/E-Component Test Requirement, DaimlerChrysler Joint Engineering Standard, DC-10611 Rev-A	Environmental certification for hydrogen vehicle qualification

"American Sensor Technologies, Inc. will meet or exceed customer expectations for quality, delivery and performance. We will meet applicable regulatory requirements. We are committed to growing, improving and enhancing our processes, products and people."

# Warranty Information



## Quality of Product

AST is committed to providing a proven product which meets all current specifications and through both design and manufacturing process, is free from defects in material and workmanship. Each unit has been thoroughly tested and inspected to ensure proper operation and possession of specified mechanical and electrical properties.

## Specific Warranty Provisions

AST warrants that units shipped will be free from defects in material and workmanship for a period of one (1) year from date of shipment. In the event that warranty service is required, AST will, at its option, either repair or replace unit(s) or product(s) found to be defective, provided that they are returned, prepaid, to AST.

## What This Warranty Does Not Cover

Warranty provisions cover only defects in material and workmanship provided by AST and does not cover damage from misuse, misapplication, abuse, accident, act of God, or non-AST alterations, modification, upgrade or improper return shipping, packaging or shipping damage. The purchaser is responsible for media compatibility, functional adequacy, and correct installation of the transmitter.

## How is Warranty Service Obtained?

Warranty service may be obtained by calling AST at (973) 448-1901 and being prepared to provide unit type or part number, serial number or date code and a description of the problem being experienced. AST will attempt to solve the problem over the phone, but in the event that unit(s) or product(s) must be returned for evaluation and possible repair or replacement, instructions will be given for return of shipment to AST.

For the fastest response, complete the details requested on the following web page:

<http://www.astensors.com/rma-form.php>

In the event unit(s) or product(s) is/are returned and determined to have no defect or improper operation, an evaluation charge per unit may be billed to the customer.

## Repair or Replacement is Your Only Remedy

Your only remedy under this warranty is repair or replacement of unit(s) or product(s) as described above. AST will not be liable for any incidental or consequential damages resulting from use or inability to use unit(s) or product(s) supplied. AST expressly disclaims any implied warranty of fitness for a particular purpose.

American Sensor Technologies

450 Clark Drive • Mount Olive • New Jersey • 07828 • USA

Phone: (973) 448-1901 • Fax: (973) 448-1905

[www.astensors.com](http://www.astensors.com)

## Addition Literature Available from AST



### Pressure

American Sensor Technologies  
450 Clark Drive  
Mount Olive, NJ 07828 USA  
Phone: (973) 448-1901  
Fax: (973) 448-1905  
info@astensors.com  
www.astensors.com

### Position

Macro Sensors  
7300 US Route 130 North, Building 22  
Pennsauken, NJ 08110 USA  
Phone: (856) 662-8000  
Fax: (856) 317-1005  
lvdts@macrosensors.com  
www.macrosensors.com

