

AST5400 Differential Pressure Transducer



Overview

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
- Turndown capability
- Both or either pressure port can see full line pressure - **No expensive balancing valves required!**
- Line pressure up to 5,000 PSI
- Smart electronics with failure condition protection
- Wide variety of materials for a variety of media

Applications

- Aerospace
- Analytical Instruments
- Fuel Systems
- Hydraulics
- Hydrogen (316L only)
- Labs / Metrology
- Medical
- Military
- Test Stands
- Desalination Equipment (Inconel718 Recommended)

Performance @ 25°C (77°F)

Total Error Band*	± 1% of line pressure
Maximum Line Pressure	5,000 PSI (350 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.

Environmental Data

Temperature

Operating	-20 to 70°C (-4 to 158°F)
Storage	-50 to 125°C (-58 to 250°F)

Thermal Performance

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

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

Electrical Data

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



Ordering Information

5400 F 01000 P 5 Y 0 0500 H 00

Series Type

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

Line Pressure
 Insert 5 -digit code from chart

Pressure Unit
 P= PSI B= BAR, K= kg/cm2

Outputs
 1= 0.5-4.5V ratiometric [5VDC Supply] 5= 0-10V
 2= 0-5V 6= 1-6V
 3= 1-5V G= 1-10V
 4= 4-20mA

Electrical
 A= 2 ft. (24 AWG) (0.6m) I= DIN43650 A
 B= 4 ft. (24 AWG) (1.2m) L= Conduit 2 ft. (0.6m)
 C= 6 ft (24 AWG) R= 6 Pin Bendix
 D= 10 ft (24 AWG) Y= M12x1 Eurofast
 E= Mini DIN 43650C

Wetted Material
 0= 17-4PH 1= 316L 2= Inconel718 (contact factory for availability)

Differential Pressure Range
 Insert 4-digit code from Chart

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

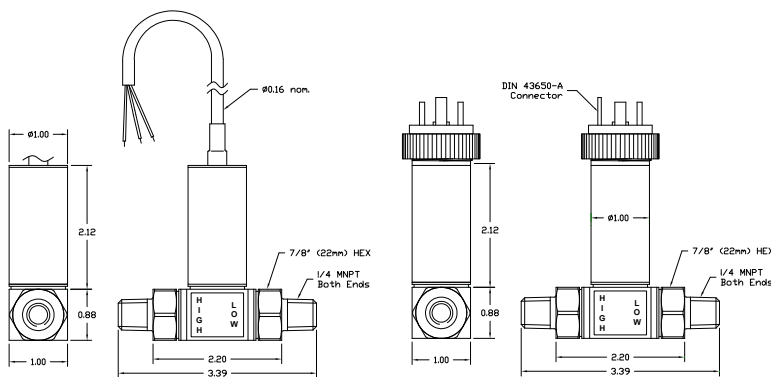
Options
 00= No Special Options

Line Pressure*

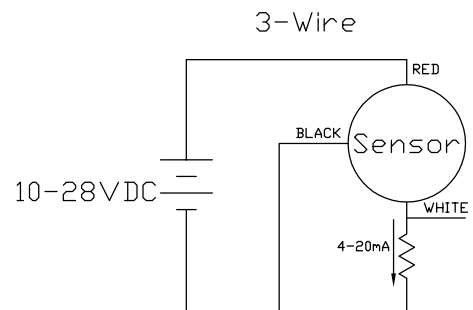
		50	100	300	500	1,000	2,000	5,000	
		CODE	00050	00100	00300	00500	01000	02000	05000
Differential Pressure Range* (PSID)	10	0010	✓	✓					
	20	0020	✓	✓	✓				
	50	0050		✓	✓	✓			
	75	0075		✓	✓	✓	✓		
	100	0100		✓	✓	✓	✓		
	150	0150			✓	✓	✓		
	200	0200			✓	✓	✓	✓	
	300	0300			✓	✓	✓	✓	
	500	0500				✓	✓	✓	✓
	750	0750					✓	✓	✓
1,000	1000						✓	✓	
2,000	2000							✓	
5,000	5000								✓

*Other ranges available; contact factory.

Dimensional Data



4-20mA Wiring Schematic



Warranty

Workmanship - AST, Inc. pressure transmitters have a limited one-year warranty to the original purchaser. AST, Inc. will replace or repair, free of charge, any defective transmitter. This warranty does not apply to any units that have been modified; misused, neglected or installed where the application exceeds published ratings. AST's sensors are made with pride in New Jersey, USA. If in the area please feel free to stop by for a visit!

Installation/Applications - The purchaser is responsible for media compatibility, functional adequacy, and correct installation of the transmitter.