

# Intrinsically Safe

## AST4400 Pressure Transducer / Transmitter



The AST4400 is a stainless steel pressure transducer with a wide variety of options. With its rugged construction and best price-to-performance ratio in the industry, the AST4400 is the solution for pressure measurement in Intrinsically Safe areas.

### Benefits

- Class I Div 1 Intrinsically Safe Groups C, D when installed with an approved barrier
- Class I Zone 0 Exia IIB T4 Ga (Ta = -40°C to +80°C)
- High Strength Stainless Steel Construction
- No Oil, Welds or Internal O-rings
- Wide Operating Temperature
- Pressures up to 20,000 PSI
- Low Static and Thermal Errors
- Unparalleled Price and Performance
- Compatible with Wide Variety of Liquids and Gases

### Applications

- Industrial OEM Equipment
- HVAC/R Equipment
- Water Management
- Control Panels
- Pneumatics
- Hydraulic Systems
- Data Loggers

### 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 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

**For UL certified barrier drawing, see A01657.  
For CSA certified barrier drawing, see A08949.**

### Performance @ 25°C (77°F)

Accuracy*	< ±0.25% BFSL (<±0.5% from 7,500 up to 20,000 PSI)
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 40,000 PSI (whichever is less)
Pressure Cycles	> 100 Million

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

### Electrical Data

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

### Ordering Information

**AST4400**

**A**

**00500**

**P**

**4**

**L**

**1**

**000**

**-SS**

**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\*
- I= 1/4" NPT Female\*\*
- P= 1/2" MNPT\*\*
- W= F250C Female Autoclave\*\*\*

\*Not available under 50PSI (not available in 316L) \*\*Pressures up to 15,000 PSI  
 \*\*\*Pressures from 10,000 to 20,000 PSI, not available in 316L

**Pressure Measurement**

Insert 5-digit pressure code

**Pressure Unit**

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

**Outputs**

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

**Electrical**

- A= 2 ft. (0.6m)
- B= 4 ft. (1.2m)
- C= 6 ft. (1.8m)
- D= 10 ft. (3.0m)
- E= Mini DIN 43650C
- F= Packard Metripack 150 3-Pin
- I= DIN 43650A
- L= Conduit, Cable 2 ft. (0.6 m)\*
- M= Conduit, Cable 4 ft. (1.2 m)\*
- N= Conduit, Cable 6 ft. (1.8 m)\*
- P= Conduit, Cable 10 ft. (3 m)\*
- Y= M12x1
- 4 = Mini-Fast (CSA Only)

\*Also approved to UL/cUL 1604 Class 1 Div 1, Group A, B, C, D without requiring a barrier

**Wetted Material**

- 0= 17-4PH
- 1= 316L
- 2= Inconel 718 (consult factory on availability)
- 4= Hastelloy C276 (consult factory on availability)

**Options**

000= No Options

**Approval**

(Left Blank)= UL ANSI/ISA 12.12.01 Class I Div 1 Intrinsically Safe Groups C, D (formerly UL913)  
 -SS= Add "-SS" for CSA157 Class I Div 1 Groups C, D Intrinsically Safe and ANSI/ISA 12.27.01 Single Seal Approval and SIRA ATEX Exia IIB Class I, Zone 0, T4  
 -Z= Add "-Z" for CRN Registered to ANSI/ASME B31.3. Contact factory for material, pressure, and process connection options (includes -SS approvals)

Note: CSA approved products require case/earth ground electrical connection. See wiring installation sheet for further details

### Pressure Ranges\*

PSIG Measurement	-14.7 to 25**	Pressure Code	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
CSA ONLY	0-15,000	CSA ONLY	15000
	0-20,000		20000

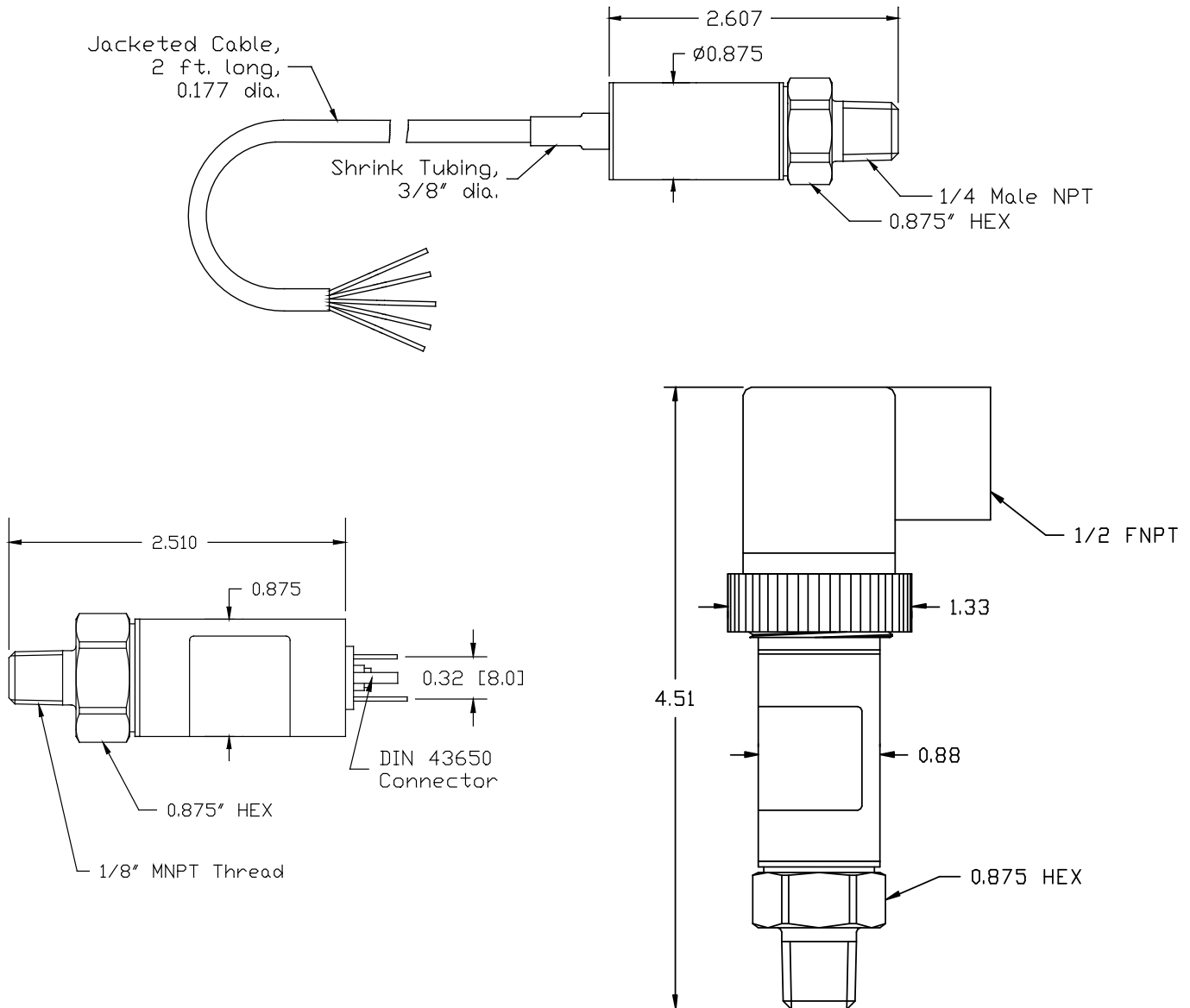
BARG Measurement	-1 to 2**	Pressure Code	V0002**
	0-2		00002
	0-5		00005
	0-7		00007
	0-10		00010
	0-20		00020
	0-35		00035
	0-50		00050
	0-100		00100
	0-250		00250
	0-350		00350
	0-500		00500
	0-700		00700

\*Typical ranges. All ranges between 0-25 PSI and 0-20,000 PSI available.  
 \*\*Compound ranges up to -14.7 to 500 PSI available. Please consult factory.

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All specifications subject to change without notice.

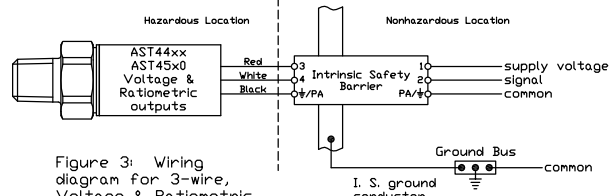
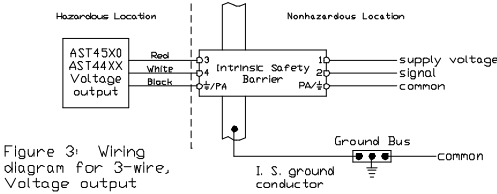
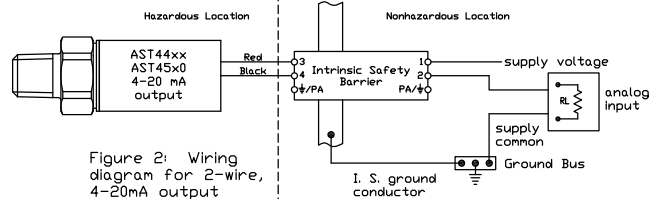
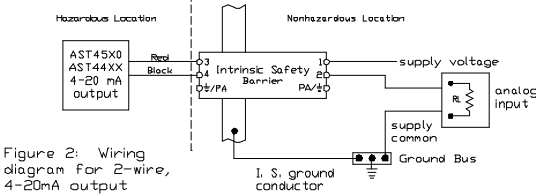
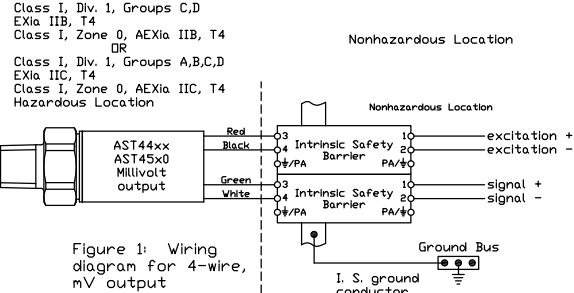
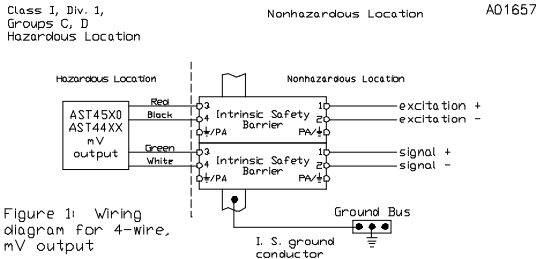
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## AST4400 Pressure Transducer / Transmitter

### UL Approved Barrier Installation / A01657

### CSA Approved Barrier Installation / A08949



The transducers listed below are designed for installation in a Class I, Division 1, Groups C and D, Division 1 hazardous location when connected to Associated Apparatus as described in note 1.

#### Entity Parameters

$V_{max} = 28Vdc$   
 $I_{max} = 175mA$   $I_{max}$  is the total current available from the Associated Apparatus under any condition.  
 $C1 = 0.44\mu f$   
 $L1 = 0$

#### Notes:

1. Associated Apparatus shall provide intrinsically safe connections which meet the following parameters.

$$V_{oc} \text{ or } V_t \leq V_{max}$$

$$I_{sc} \text{ or } I_t \leq I_{max}$$

$$C_o \geq C_i + C_{cable}$$

$$L_o \geq L_i + L_{cable}$$

2. Control Room apparatus shall not generate in excess of 250V ( $U_{max}$ ).

3. Installation should be in accordance with Article 504 in the National Electrical Code, ANSI/NFPA 70.

#### Entity Parameters

Models AST4400, AST44LP, AST4500, AST4510, AST4520, AST4530  
 Class I, Div. 1, Groups C,D; EXIa IIB, T4; Class I, Zone 0, AEXIa IIB, T4  
 $V_{max} = 28Vdc$

Model AST4401  
 Class I, Div. 1, Groups A,B,C,D; EXIa IIC, T4; Class I, Zone 0, AEXIa IIC, T4  
 $V_{max} = 14.5Vdc$

4-20mA with integral connector	4-20mA with upto 1000ft of integral cable	All EXCEPT 4-20mA with integral connector	All EXCEPT 4-20mA with upto 150ft of integral cable
$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C1 = 0.391 \mu f$ $L1 = 0$	$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C1 = 0.434 \mu f$ $L1 = 155 \mu H$	$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C1 = 0.643 \mu f$ $L1 = 0$	$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C1 = 0.649 \mu f$ $L1 = 23.3 \mu H$

- For installation in accordance with Fig 2, barrier must be a CSA Certified, Single Channel grounded Shunt-Diode Zener Barrier or a Single Channel Isolating Barrier.
- For installations in accordance with Figs. 1 and 3, one dual-channel or two single-channel barriers may be used, where in either case, both channels have been Certified for use together with combined entity parameters.
- The following conditions must be satisfied:
 
$$V_{oc} \text{ or } U_o \leq V_{max}$$

$$I_{sc} \text{ or } I_o \leq I_{max}$$

$$P_o \leq P_i \text{ (if applicable)}$$

$$C_a \text{ or } C_o \geq C_i + C_{cable}$$

$$L_a \text{ or } L_o \geq L_i + L_{cable}$$
- Maximum non-hazardous area voltage must not exceed 250 V.
- Canadian installations should be in accordance with Canadian Electrical Code, Part I. U.S. installations should be in accordance with Article 504 in the National Electrical Code, ANSI/NFPA 70.
- A grounding method is not provided by the manufacturer as part of the integral design of the Transducer. For units which are connected through a grounded shunt diode safety barrier, ensure that the transducer is mounted to a surface which is at the same potential as the barrier ground.
- See user manual for installation conditions.