

# Intrinsically Safe



## AST44LP Low Pressure Transducer / Transmitter



The AST44LP is a stainless steel pressure transducer with a wide variety of options. With its rugged construction and the best price-to-performance ratio in the industry, the AST44LP is the solution for low pressure measurement in Intrinsically Safe areas.

### Benefits

- Class 1 Div 1 Groups C,D when installed with an approved barrier
- ATEX / IECEx Class I Zone 0 Exia IIB T4 Ga (Ta = -40°C to +80°C)
- High Strength Stainless Steel Construction
- No Internal O-rings
- Wide Operating Temperature
- Pressures from 0-1 to 0-15 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
- Vapor Recovery
- Data Loggers
- External Tank Levels

### 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, min

**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% BFSL for 0-1 PSI)
Stability (1 year)	±0.25% FS, typical
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 75 PSI (whichever is less)
Pressure Cycles	> 100 Million

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

### Electrical Data

Output	4-20mA	1-5VDC	1-6VDC
Excitation	10-28VDC	10-28VDC	10-28VDC
Output Impedance	>10k Ohms	<100 Ohms, Nominal	<100 Ohms, Nominal
Current Consumption:	20mA, typical	5mA, typical	5mA, typical
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

**AST44LP**

**A**

**00005**

**P**

**4**

**E**

**1**

**000**

**-SS**

### Series Type

### Process Connection

A= 1/4" NPT Male  
C= 1/4" BSPP Male

I= 1/4" NPT Female  
P= 1/2" MNPT

### Pressure Measurement

Insert 5-digit pressure code

### Pressure Unit

H= Inches H<sub>2</sub>O      P= PSI

### Outputs

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 43650  
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)  
R= Bendix 6 Pin  
4 = Mini-Fast (CSA Only)  
Y= M12x1

### Wetted Material

1= 316L      4= Hastelloy (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= CSA157 Class I Div 1 Grps C, D Intrinsically Safe, ANSI/ISA 12.27.01 Single Seal and ATEX/IECEX Exia IIC Class I, Zone 0, T4

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

## Pressure Ranges

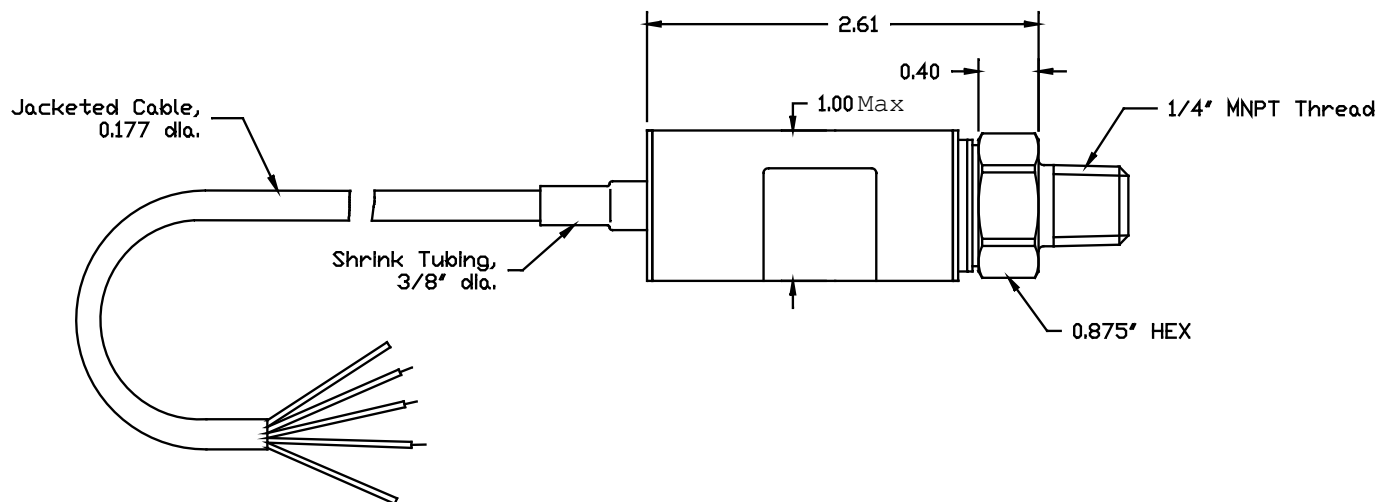
<b>PSIG Measurement</b>	0-1	<b>Pressure Code</b>	00001
	0-2.5*		00069
	0-5		00005
	0-7.5*		00208
	0-10		00010
	0-15		00015

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

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### UL Approved Barrier Installation / A01657

### CSA Approved Barrier Installation / A08949

Class I, Div. 1, Groups C,D  
Class I, Zone 0 Ex Ia IIB T4  
Class I, Zone 0 AEx Ia IIB T4  
OR  
Class I, Div. 1, Groups A,B,C,D  
Class I, Zone 0 Ex Ia IIC T4  
Class I, Zone 0 AEx Ia IIC T4  
Hazardous Location

Nonhazardous Location

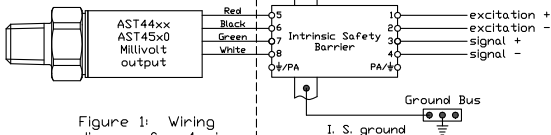


Figure 1: Wiring diagram for 4-wire, mV output

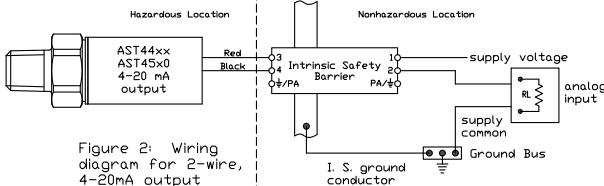


Figure 2: Wiring diagram for 2-wire, 4-20mA output

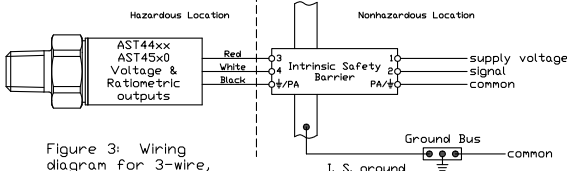


Figure 3: Wiring diagram for 3-wire, Voltage & Ratiometric outputs

The transducers listed below are designed for installation in EITHER Class I, Division 1, Groups C,D; Class I, Zone 0 Group IIB OR Class I, Division 1, Groups A,B,C,D; Class I, Zone 0 Group IIC hazardous locations when connected to Associated Apparatus as described in note 1.

#### Entity Parameters

Models AST4400, AST44LP, AST4500, AST4510, AST4520

Class I, Div. 1, Groups C,D; Class I, Zone 0 Ex Ia IIB T4; Class I, Zone 0 AEx Ia IIB T4  
 $V_{max} = 28V$

#### Model AST4401

Class I, Div. 1, Groups A,B,C,D; Class I, Zone 0 Ex Ia IIC T4; Class I, Zone 0 AEx Ia IIC T4  
 $V_{max} = 14.5V$

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
$P_{max} = 651 mW$ $I_{max} = 93 mA$ $C_i = 0.391 \mu F$ $L_i = 0 \mu H$	$P_{max} = 651 mW$ $I_{max} = 93 mA$ $C_i = 0.434 \mu F$ $L_i = 0 \mu H$	$P_{max} = 651 mW$ $I_{max} = 93 mA$ $C_i = 0.643 \mu F$ $L_i = 0 \mu H$	$P_{max} = 651 mW$ $I_{max} = 93 mA$ $C_i = 0.649 \mu F$ $L_i = 0 \mu H$

IsC or Io is the total current available from the Associated Apparatus under any condition.

#### 1. The following conditions must be satisfied:

- $V_{oc}$  or  $U_o \leq V_{max}$
- $I_{sc}$  or  $I_o \leq I_{max}$
- $P_o \leq P_i$  (if applicable)
- Total customer cable length for 4-20mA transmitters not to exceed 4000ft.
- Total customer cable length for all other transmitters not to exceed 150ft.
- Where the cable capacitance and inductance per foot are not known, the following values shall be used:  $C_{cable} = 60pF/ft$ ,  $L_{cable} = 0.2\mu H/ft$

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

#### 3. 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.

Class I, Div. 1, Groups C,D  
EXia IIB, T4  
Class I, Zone 0, AEXia IIB, T4  
OR  
Class I, Div. 1, Groups A,B,C,D  
EXia IIC, T4  
Class I, Zone 0, AEXia IIC, T4  
Hazardous Location

Nonhazardous Location

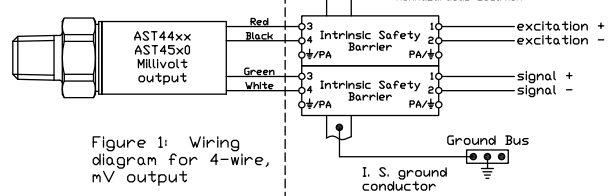


Figure 1: Wiring diagram for 4-wire, mV output

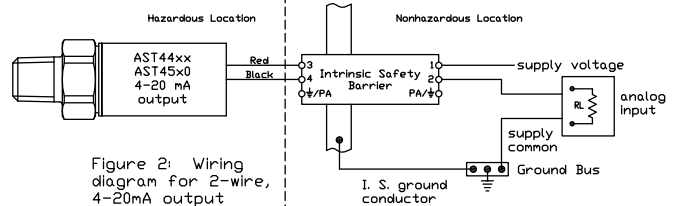


Figure 2: Wiring diagram for 2-wire, 4-20mA output

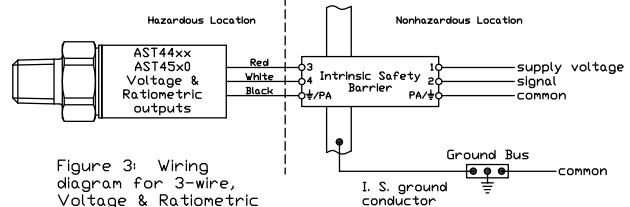


Figure 3: Wiring diagram for 3-wire, Voltage & Ratiometric outputs

#### 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
$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C_i = 0.391 \mu F$ $L_i = 0$	$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C_i = 0.434 \mu F$ $L_i = 155 \mu H$	$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C_i = 0.643 \mu F$ $L_i = 0$	$P_{max} = 625 mW$ $I_{max} = 93 mA$ $C_i = 0.649 \mu F$ $L_i = 23.3 \mu H$

#### 1. 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.

#### 2. 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.

#### 3. The following conditions must be satisfied:

- $V_{oc}$  or  $U_o \leq V_{max}$
- $I_{sc}$  or  $I_o \leq I_{max}$
- $P_o \leq P_i$  (if applicable)
- $L_a$  or  $L_o \geq L_i + L_{cable}$

#### 4. Maximum non-hazardous area voltage must not exceed 250 V.

#### 5. 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.

#### 6. 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.

#### 7. See user manual for installation conditions.