

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

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

Environmental Data

Temperature

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

0-100% relative humidity, non-condensing

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

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 (example: 0-5 PSI = 00005)

Pressure Unit

H= Inches H₂O 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 588= 0.5-2.5V non-ratiometric (3-5VDC)

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

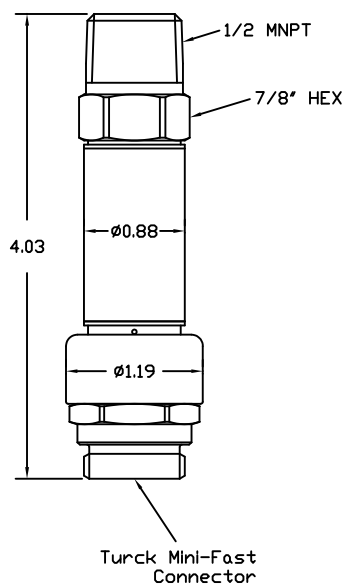
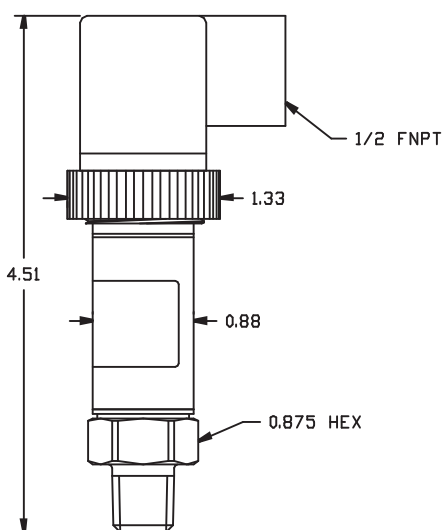
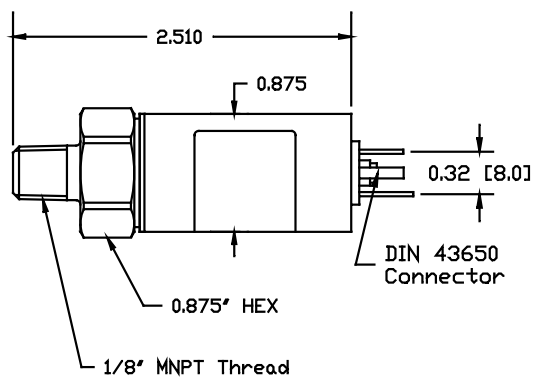
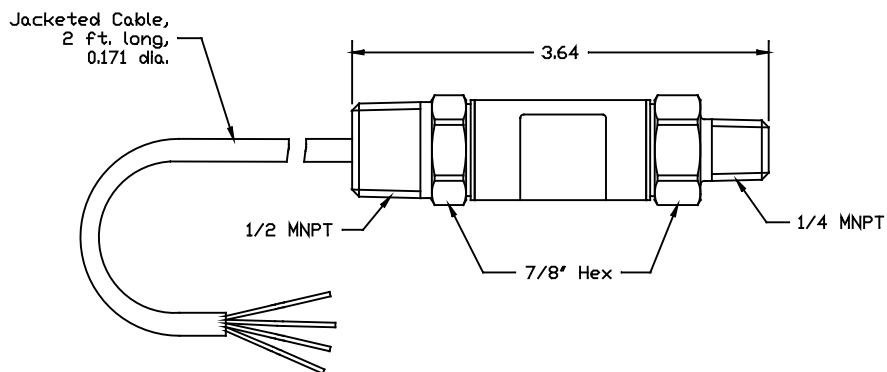
PSIG Measurement	0-1	Pressure Code	00001
	0-2.5*		00069
	0-5		00005
	0-7.5*		00208
	0-10		00010
	0-15		00015

*2.5 and 7.5 PSI Sensor must be ordered in inches of H₂O.

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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

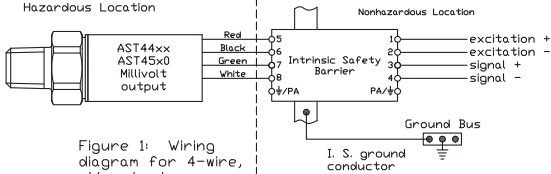


Figure 1: Wiring diagram for 4-wire, mV output

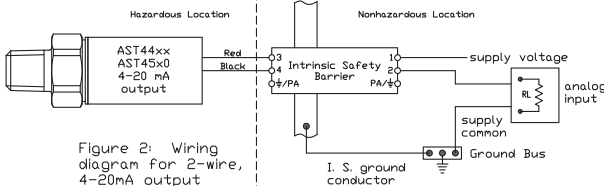


Figure 2: Wiring diagram for 2-wire, 4-20mA output

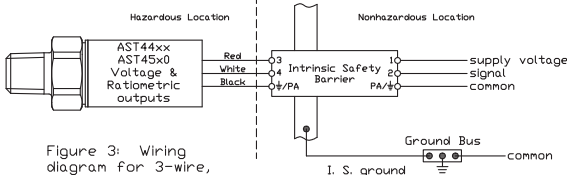


Figure 3: Wiring diagram for 3-wire, Voltage & Ratiometric outputs

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

I_{sc} or I_o is the total current available from the Associated Apparatus under any condition.

1. The following conditions must be satisfied:

V_{oc} or $U_o \leq V_{max}$ C_a or $C_o \geq C_i + C_{cable}$
 I_{sc} or $I_o \leq I_{max}$ L_a or $L_o \geq L_i + L_{cable}$
 $P_o \leq P_i$ (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

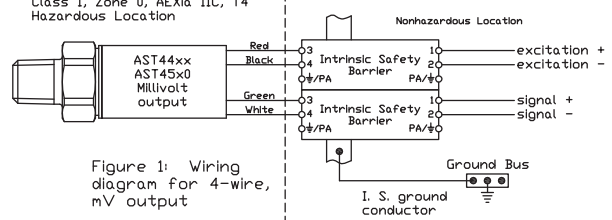


Figure 1: Wiring diagram for 4-wire, mV output

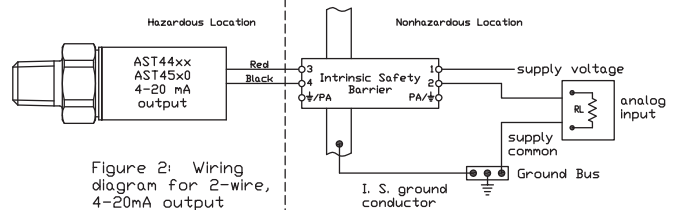


Figure 2: Wiring diagram for 2-wire, 4-20mA output

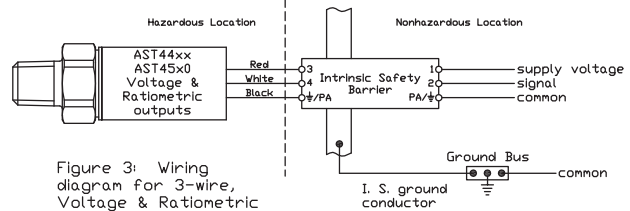


Figure 3: Wiring diagram for 3-wire, Voltage & Ratiometric outputs

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

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.