



PVDF/PTFE

Submersible Pressure Transducer AST4530

Overview

The AST4530 submersible pressure transducer is constructed using PVDF material and a PTFE diaphragm. Designed to measure liquid level of corrosive liquids, the AST4530 features submersible PVDF cable, cord grip and housing. The AST4530 features a conduit connection for turbulent installations such as on-board ships, turbulent tanks, and rail cars. Voltage and 4-20mA output signals allow users to interface for low current consumption or long distance transmission applications.

The AST4530 is CSA157 certified to Class I Div 1, Groups C and D for use in intrinsically safe areas with an approved barrier, ANSI/ISA 12.27.01 Single Seal Approved and ATEX / IECEx Exia IIB Class I, Zone 0, T4.

CAN/CSA C22.2 No 60079-0:11, ANSI/ISA 60079-0:09, CAN/CSA E60079-11:02, ANSI/ISA 60079-11:11, CAN/CSA C22.2N.157-92, UL 913 (6th Edition).

Benefits

- ABS (American Bureau of Shipping) Approved
- Class I Zone 0 Exia IIB T4 Ga (Ta = 0°C to +60°C)
- Excellent liquid and gas compatibility
- Cost effective alternative to ultrasonic & radar sensor technologies
- Works with reflective liquids
- Will not fail due to vapor
- No galvanic corrosion or risk of bacteria

Applications

- Chemical totes
- Salt water holding tanks
- Process plants
- Rail-car liquid level monitoring
- Storage tanks

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Performance @ 25°C (77°F)

Accuracy	< ±0.5% BFL
Over Range Protection	2X Rated Pressure
Burst Pressure	5X or 1,250 PSI (whichever is less)
Pressure Cycles	>50 Million

Environmental Data

Temperature

Operating	0 to 60°C (32 to 140°F)
Storage	0 to 80°C (32 to 176°F)

0-100% relative humidity, non-condensing

Thermal Limits

Compensated Range	0 to 55°C (32 to 132°F)
TC Zero	<±2.0% of FS
TC Span	<±2.0% of FS

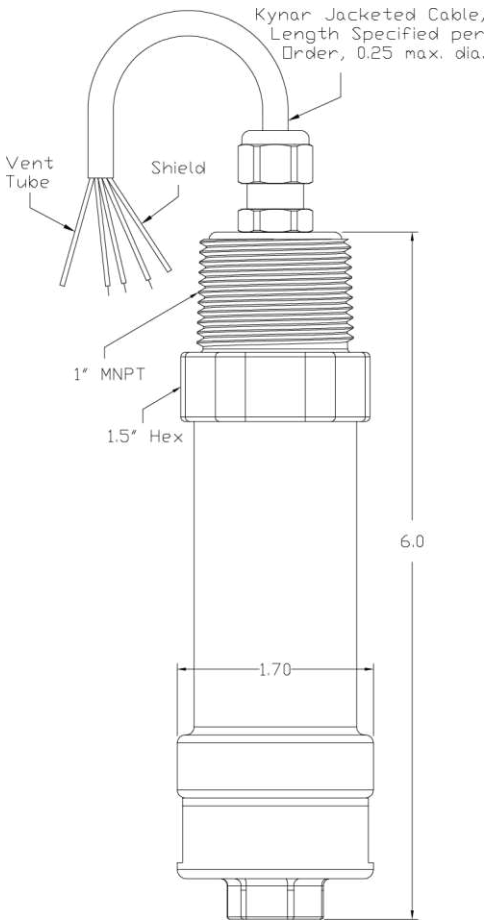
Other

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

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

Dimensions



CSA Approved Barrier Installation / A08949

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

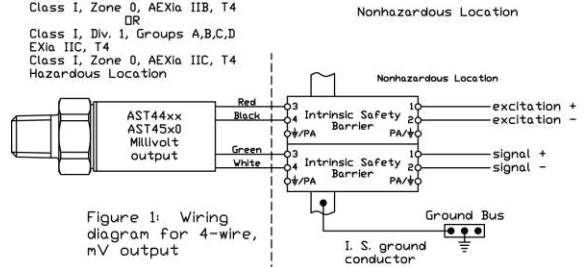


Figure 1: Wiring diagram for 4-wire, mV output

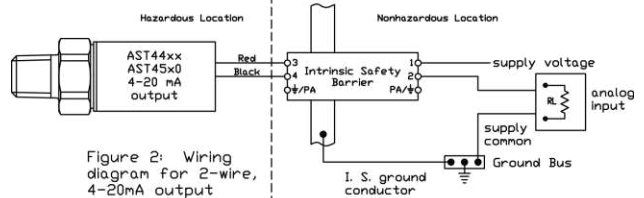


Figure 2: Wiring diagram for 2-wire, 4-20mA output

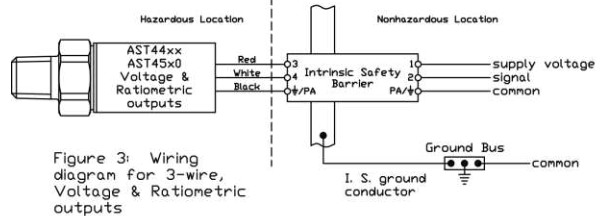


Figure 3: Wiring diagram for 3-wire, Voltage & Ratiometric outputs

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

- 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:

$$V_{oc} \text{ or } U_o \leq V_{max} \quad C_a \text{ or } C_o \geq C_i + C_{cable}$$

$$I_{sc} \text{ or } I_o \leq I_{max} \quad L_a \text{ or } L_o \geq L_i + L_{cable}$$

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

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AST4530 Submersible Pressure Transducer

AST4530 I 00020 P 4 X 9 354

Series Type

Process Connection

I= 1/4" FNPT
(not intended for threaded installation)

Pressure Range

Insert 5-digit pressure range code.
*2.5 and 7.5 PSI Sensor must be ordered in inches of H₂O.

PSIG	CODE		Ft of Water Column @ 4°C (approx.)	CODE	
0-30	00030	P	6	00072	H
0-20	00020	P	10	00120	H
0-15	00015	P	20	00240	H
0-10	00010	P	30	00360	H
0-7.5*	00208*	H	50	00600	H
0-5	00005	P			
0-2.5*	00069*	H			

Pressure Unit

B= Bar
H= Inches H₂O
K= kg/cm²
P= PSI

Outputs *(contact factory for 0.5-2.5V non-ratiometric (3-5VDC))*

1= 0.5-4.5V ratiometric
3= 1-5V
4= 4-20mA

Electrical

X= See Options Below

Wetted Material

9= PVDF / PTFE / Viton

Options (Cable Lengths):

353 = 25 ft. (7.62 m)
354 = 50 ft. (15.24 m)
355 = 75 ft. (22.86 m)

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