Overview

The AST4500 and AST4510 submersible level sensors are approved to UL/cUL913 (CSA 157) Class I Div 1, Groups C and D for use in intrinsically safe areas with an approved barrier. For pressure ranges from 0-1 to 0-100 PSI that require a wide range of media compatibility, the submersible series is an excellent solution to level monitoring for indoor and outdoor applications. The AST4500 and AST4510 level sensors are completely sealed for submersion, yet vented through the cable to correct for barometric pressure changes. The welded housing is tested in-house via a helium leak tester to ensure proper protection. The conductors of the cable are also isolated from the outside environment to keep the sensor operational for long-term use. With a removable nose cone, the AST4500 and AST4510 series can be also be installed outside of the tank through a 1/4" NPT pipe connection. In this configuration, the sensor continuously monitors the tank level through a threaded connection outside the tank, yet remains fully submersible for applications with flood prone environments or severe wash-down conditions. Available with voltage or 4-20mA output signals, AST can provide a cost effective solution for level monitoring for a variety of applications.

Benefits

- High Strength Stainless Steel Construction
- No Internal O-rings
- Wide Operating Temperature Range
- Ranges up to 100 PSI
- Low Static and Thermal Errors

Applications

- Ground Water Level Measurement
- Earthen & Concrete Dams
- Liquid Tanks

- Unparalleled Price and Performance
- Rugged Design
- Survives Harsh Environments
- Compatible with Wide Range of Liquids
- EMI/RFI Protection
- Gasoline & Diesel Fuel Tanks
- Irrigation
- Waste Water Canals

| 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 1,250 PSI (whichever is less) | | |
| Pressure Cycles | >50 Million | | |
| *Accuracy includes non-linearity, hysteresis & non-repeatability | | | |



| Environmental Data | | | |
|--------------------|-----------------------------|--|--|
| Temperature | | | |
| Operating | -40 to 85°C (-40 to 185°F) | | |
| Storage | -40 to 100°C (-40 to 212°F) | | |
| Thermal Limits | | | |
| Compensated Range | 0 to 55°C (30 to 130°F) | | |
| TC Zero | <±1.5% of FS | | |
| TC Span | <±1.5% of FS | | |
| Other | | | |
| Shock | 100G, 11 msec, 1/2 sine | | |
| Vibration | 10G peak, 20 to 2000 Hz. | | |
| EMI/RFI Protection | Yes | | |
| Rating | IP-68 | | |

| 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 | <±1% of FS | | |
| Span Tolerance | <±2% of FS | <±1.5% of FS | | |
| Output Load | 0-800 Ohms@10-28VDC | 10k Ohms, min | | |
| Reverse Polarity Protection | Yes | Yes | | |



A08949

Ordering Information

00005 P 4 C 1 000 -SS **AST4510**

Series Type

Configuration Interface

L = Cone

Pressure Range

Insert 5-digit pressure range code

Pressure Unit

K = kg/cm2B = Bar H= Inches H₂O P = PSI

Outputs

1 = 0.5-4.5V ratiometric*

3 = 1-5V

4 = 4-20mA

Electrical

C = 6 ft. (1.8 m)

D = 10 ft. (3 m)

X = Optional Length (see options)

Wetted Material

1 = 316L Hytrel

Options Cable Lengths:

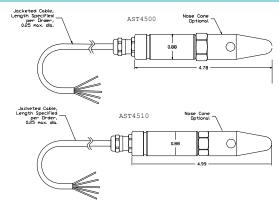
140 = 15 ft. (4.6 m)004 = 35 ft. (10.7 m) 003 = 100 ft. (30.5 m) 130 = 40 ft. (12.2 m) 075 = 20 ft. (6.1 m)050 = 150 ft. (45.7 m)

074 = 25 ft. (7.6 m)065 = 50 ft. (15.2 m)

Single Seal

*Consult factory on availability

Dimensional Data



| Output | Red | Black | White | Green |
|------------|-----------|--------|----------|----------|
| 4-20mA | +V Supply | Ground | N/C | Case GND |
| 3W Voltage | +V Supply | Ground | + Signal | Case GND |

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. All units returned for warranty evaluation must be thoroughly cleaned and free of process residue prior to shipment. Units that are not properly cleaned will be discarded and warranty service will be denied. This warranty does not apply to any units that have been modified; misused, neglected or installed where the application exceeds published ratings. AST4510 is not recommended for use with hydrogen. 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. The nose cone is installed on the sensor with Loctite®. To remove, hold the sensor by the hex with a wrench. Put a screwdriver through both holes of the nose cone and turn counterclockwise. The level sensor will have a 1/4" NPT Male pressure port.

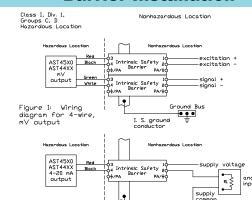
Pressure Ranges*

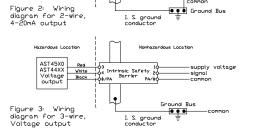
| 200 | Gage PSIG | Pressure Range Code | Feet of Water Column @ 4°C (approx.) |
|----------|--------------|------------------------|---|
| 5 | 0-100 | 00100 | 230.67 |
| H | 0-50 | 00050 | 115.33 |
| S | 0-30 | 00030 | 69.20 |
| 4 | 0-20 | 00020 | 46.13 |

| - | 0-15 | 00015 | 34.60 | |
|----------|-------|---------|-------|--|
| _ | 0-10 | 00010 | 23.07 | |
| υ. | 0-7.5 | 00208** | 17.30 | |
| 4 | 0-5 | 00005 | 11.53 | |
| Ŋ | 0-2.5 | 00069** | 5.77 | |
| 4 | 0-1 | 00001 | 2.31 | |

*Typical Ranges. All ranges between 0-1 PSI and 0-100 PSI are available. Please consult factory. **2.5 and 7.5 PSI Sensor must be ordered in inches of H₂O.

Barrier Installation





Entity Parameters

Models AST4400, AST4410 and AST44LP

Models AST4400, AST4410 and AST44P with integral cable

Models AST4500, AST4510 and AST4520

Vmax = 28 Vdc Imax = 175 mA Ci = 0.45 uF Li = 0

Ground Bus

 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. Barrier parameters must meet the following requirements:

Voc or Uo <= Vmax Isc or Io <= Imax Po <= Pi (if applicable) Ca or Co >= Ci + Ccable La or Lo >= Li + Lcable

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 tagether with conhider dritty paraneters.

The following conditions must be satisfied:

Voc or Uo <= Vmax Isc or Io <= I max Po <= Pi (if applicable) Ca or Co >= Ci + Ccable La or Lo >= Li + Lcable

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

4. Installation should be in accordance with Canadian Electrical Code, Part I.

5. 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.