

Remote Low Power Ultrasonic Level Sensor with Cellular Modem.



Standard and Sanitary Mounting

Order from: **C A Briggs Company**; 622 Mary Street; Suite 101 - Warminster, PA 18974
 Phone: 267-673-8117 - 800-352-6265 - Fax: 267-673-8118; E-Mail: Sales@cabriggs.com - www.cabriggs.com

Features

- 1) Plug and play. Mount the sensor and connect power. The sensor automatically connects to the Sensor Server.
- 2) Web access to measurement history, calibration and diagnostics
- 3) Self adjusting technology eliminates unwanted echoes.
- 4) Self cleaning feature reduces build up on the transducer face.
- 5) Range up to 60 feet (18.2 meters).
- 6) Temperature range -40 to 120°C.
- 7) Sanitary mounting available.
- 8) PVC, SS316L or TEFLON materials for transducers.
- 9) PVC, Aluminum or SS316L for electronics enclosures.



APPLICATIONS

- 1) Any liquids and solids.
- 2) Food and pharmaceutical.
- 3) High temperature applications.
- 4) Sanitary

MECHANICAL

Conduit Entry: 1/2" NPT Hole
 (PVC Conduit only for PVC Housing)
 Enclosure : Aluminum - 94V0
 : PVC or SS316L
 Sensor : Standard - PVC,
 High Temp. : Optional - Teflon (standard mtg. only)
 HTP. (5 Bar) : S.S. (1 1/2" or 2" sanitary only)
 Ingress Protection: NEMA 6 (IP68)

ENVIRONMENTAL

Temperature Ratings

Electronics Enclosure: -40 to 140°F (-40 to 60°C)
 Continuous Operation
 PVC & Standard Sanitary Nozzle:
 - 40 to 140°F(-40 to 60°C)
 Teflon Nozzle: - 40 to 266°F(-40 to 130 °C)
 S.S. HTP Sanitary: -40 to 266°F(-40 to 130°C)
(1/2 hour steam cleaning. It is recommended that the sensor be removed for longer cleaning cycles. Not for continuous operation.)

Pressure Standard: 2 bar

Optional: 5 bar max. using HTP Sanitary Sensor or special HP- PVC Sensor.

Installation Category: Class II

Electrical Specifications

Power: 6 to 30 VDC

Output: Cellular Data to Sensor Server.

APPROVALS

FM(USA):

FM3810 (2005): Electrical Electronic Test, Measuring and Process Control Equipment
 ANSI/NEMA 250 (1991): Enclosures for Electrical Equipment

FM(CAN.):

CSA C22.2 No. 1010.1 (2004)
 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use. Part 1: General Requirements
 CSA C22.2 No. 94 (2011)
 Special Purpose Enclosures

OPERATIONAL

Accuracy : +/-0.1% of Max. span (in Lab)
 +/-0.25% of max. range (typically in field)
 Response Time: Programmable through web interface.
 Calibration : Push-button or web Interface.
 Temperature Compensation : In transducer

Technical Specifications

| Range Code | Beam Angle | Operating Range in Liquids | Resolution | Mounting |
|------------|------------|-------------------------------|------------------|----------------------------------|
| 045 | 9° | 1.0 - 60 ft. 0.30 - 18.2 m | 0.27" 6.8mm | 3.0" NPT 3.0"Ø x 3.0" H |
| 052 | 12° | 0.9 - 50 ft. 0.27 - 15.2 m | 0.23" 5.7mm | 3.0"/ 2.0" NPT 2.0"Ø x 2.7" H |
| 070 | 12° | 0.8 - 30 ft. 0.24 - 9.1 m | 0.13" 3.4 mm | 3.0"/ 2.0" NPT 1.8"Ø x 2.25"H |
| 080 | 12° | 0.7 - 20 ft. 0.21 - 6.1 m | 0.088" 2.2 mm | 3.0"/ 2.0" NPT 1.8"Ø x 2.25"H |
| 081 | 12° | 0.6 - 16 ft. 0.18 - 4.9 m | 0.07" 1.8 mm | 3.0"/ 1.5" NPT 1.5"Ø x 2.1" H |
| 148 | 12° | 0.4 - 9 ft. 0.12 - 2.7 m | 0.04" 0.98 mm | 3.0"/ 1.0" NPT 1.1"Ø x 2.0" H |

Remote Ultrasonic Sensor User Manual



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1/2" PVC Conduit Only for PVC Housings, Metal Conduit not Recommended for PVC

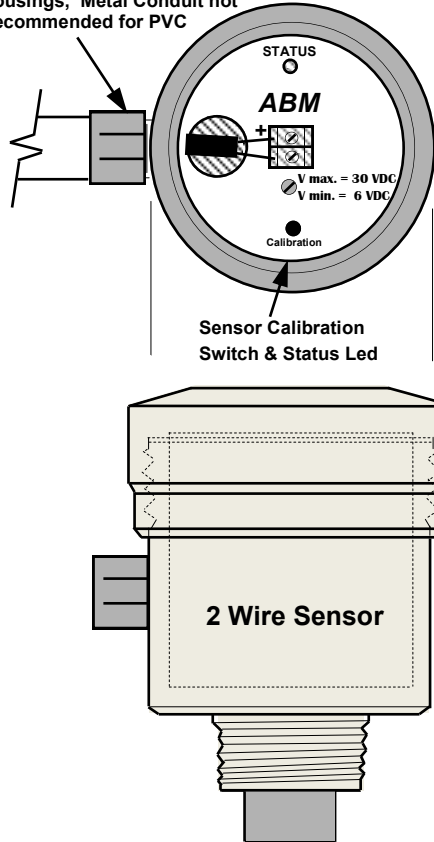
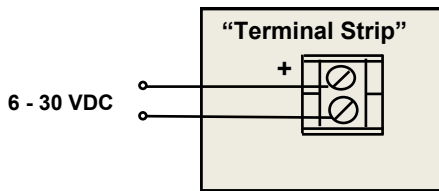


Fig. # 1 - "Remote Sensor" Wiring Connection



Calibration with Push-button

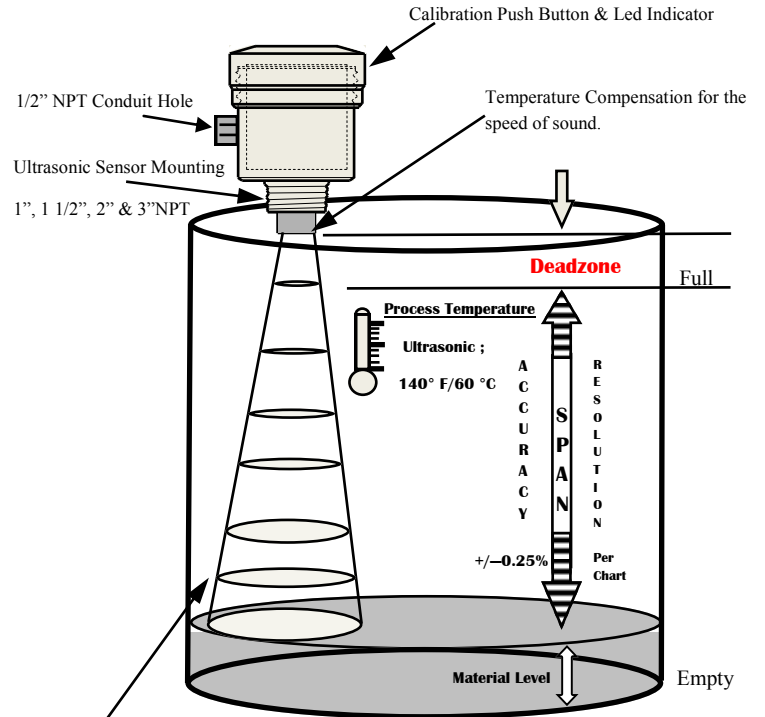
The calibration button has 3 functions "update server now", set the "full" or set "empty" level. The number of seconds the button is pressed determines which function will be executed. See Table 2 for button timing.

- Pressing the button until the LED turns green causes the sensor to wake from sleep, take a measurement, connect to the server, post the measurement and download any calibration changes.
- The calibration button can be used to set the "full" or "empty" level to the current target distance. Pressing and holding the calibration button will cause the LED to change color as per Table 2.

Example, pressing the button for greater than 7 seconds will cause the LED to turn green, then yellow. Releasing the button while the LED is yellow will set the "full" level to current material height.

Typical Installation

Direct Mounting Ultrasonic Sensor - Simply thread sensor directly into metal or plastic nozzle.



Operation - An ultrasonic pulse is transmitted from the ABM sensor. The pulse travels to the surface being monitored and is reflected off this surface back to the sensor. If data logging is enabled the measurement is stored. If data logging is off or the maximum number of measurements has been logged then the sensor connects to the server and post the measurements.

| Button Pressed (Seconds) | LED Color | Description |
|--------------------------|-----------|--|
| < 2 | Off | If the button is pressed less than 2 seconds it is ignored and no action is taken. |
| > 2 | Green | Take a measurement and connect to the server now. |
| > 7 | Yellow | Program the full tank distance equal to the current distance. |
| > 12 | Red | Program the empty tank distance equal to the current distance. |
| > 17 | Off | Button pressed greater than 17 seconds it is ignored and no action is taken |

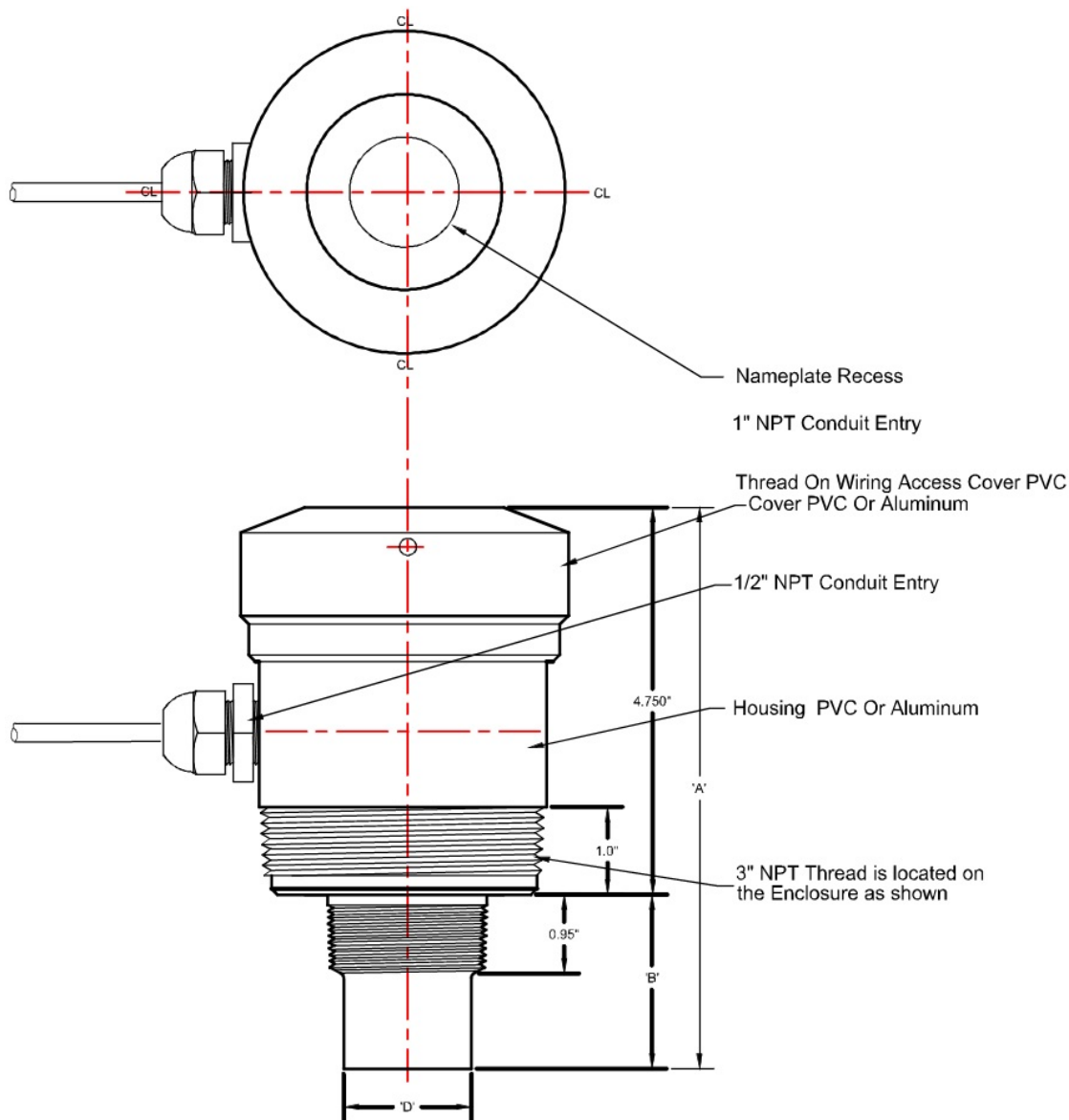
Table 2: LED color and timing. Symbols < "less than", > "greater than"

LED Order

Remote Ultrasonic Sensor Dimensions



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| Model # | Operating Range | Operating Frequency | Mounting Thread NPT | Dimension 'A' | Dimension 'B' | Dimension 'D' |
|----------------------|-----------------|---------------------|---------------------|---------------|---------------|---------------|
| ABM100-045ULCM-ALPVC | 60' (18.2m) | 45 KHz | 3" | 7.75"(197mm) | 3.0"(76.2mm) | 3.0"(76.2mm) |
| ABM100-052ULCM-ALPVC | 50' (15.2m) | 52 KHz | 3"/2" | 7.8"(198mm) | 3.05"(77.5mm) | 2.2"(55.9mm) |
| ABM100-070ULCM-ALPVC | 30' (9.1m) | 70 KHz | 3"/2" | 7.0"(178mm) | 2.25"(57.2mm) | 1.8"(45.7mm) |
| ABM100-080ULCM-ALPVC | 20' (6.1m) | 80 KHz | 3"/2" | 7.0"(178mm) | 2.25"(57.2mm) | 1.8"(45.7mm) |
| ABM100-081ULCM-ALPVC | 16' (4.9m) | 81 KHz | 3"/1.5" | 6.85"(174mm) | 2.1"(53.3mm) | 1.5"(38.1mm) |
| ABM100-148ULCM-ALPVC | 9' (2.7m) | 148 KHz | 1" | 6.75"(172mm) | 2.0"(50.8mm) | 1.1"(27.9mm) |