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Series 600 Environmental Grade Transducer

SensComp's Series 600 Environmental Grade Electrostatic Ultrasonic Sensor is specifically intended for operation in air at ultrasonic frequencies. This ultrasonic sensor is identical to the Series 600 Instrument Grade Ultrasonic Sensor except that the outer housing is made of 304 stainless steel for harsh environments.

Features

50 kHz Electrostatic Ultrasonic Sensor
Beam Angle of 15° at -6 dB
Ranges from 6" to 35'
Excellent Receive Sensitivity
Better Suited for Harsh Environments
Stainless Steel Housing, Perforated Protective Cover.
Specifically Intended for Operation in Air at Ultrasonic Frequencies

Part No.

*PID# 607281 – Series 600 Environmental Grade Ultrasonic Sensor
*PID# 607285 – Series 600 Environmental Grade Ultrasonic Sensor w/Parylene

*RoHS Compliant

Benefits

Able to Range from 6" to 35'
Excellent Receive Sensitivity

Applications

Level Measurement, Proximity Detection, Presence Detection, Robotics, Educational Products
Operation in Outdoor Environments

Specifications

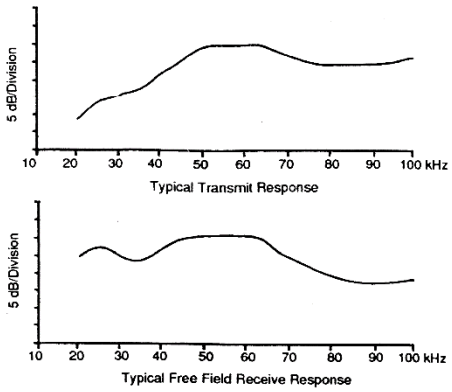
RoHS REACH

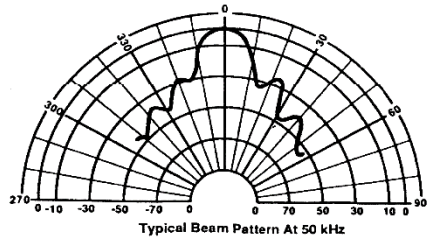
Description

The Series 600 ultra-sensitive ultrasonic sensors feature ranging capability from 2.5 cm to 15.2 m when used with SensComp drive electronics. They are ideally suited for demanding applications where the most sensitivity possible is the highest priority. These ultrasonic sensors are among the best available when detecting soft targets. They have a broad band frequency response.

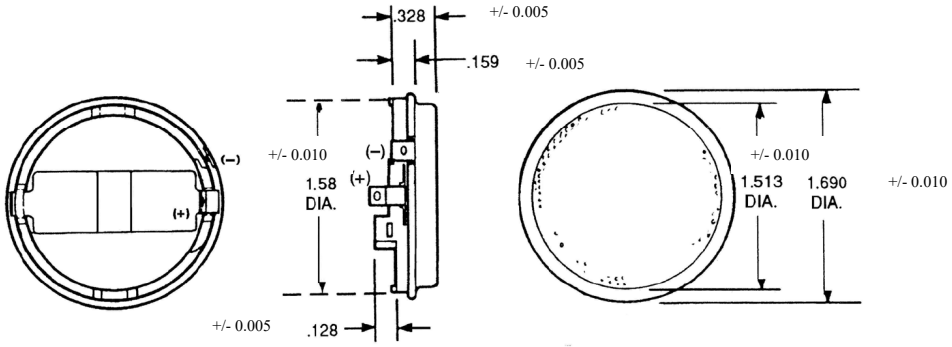
The PID 607285 has added protection of the Parylene conformal coating making this ultrasonic sensor splash resistant and able to operate more efficiently in harsh chemical environments containing organic and inorganic solvents. Additionally, the Parylene coating provides extended protection against corrosion and mechanical abrasion.

Transmit/Receive Response & Beam Pattern





Note: dB normalized to on-axis response.
Note: Curves are representative only. Individual responses may differ.



Specifications

Usable Frequency Range
- **Transmitting** ..... See Graph
- **Receiving** ..... See Graph

Beam Pattern ..... See Graph
Typical: 15° at -6dB

Transmitting Sensitivity ..... 110 dB min
at 50.0 kHz; 0dB re 20 µPa at 1 meter
(300 VAC_{PP}; 150 VDC bias)

Receiving Sensitivity ..... -42 dB min
at 50.0 kHz; 0dB = 1 volt/Pa
(150 VDC bias)

Distance Range ..... 0.15 to 10.7 M
(0.5 to 35 feet)

Resolution (± 1% over entire range)..... ± 3mm to 3m
(± 0.12 to 10 ft)

Weight ..... 8.2 gm (0.29 oz)

Suggested DC Bias Voltage 200V

Suggested AC Driving Voltage ..... 200V peak

Combined Voltage ..... 400V max

Capacitance at 1 kHz (typical) ..... 400–500 pf
(at 150 VDC bias)

Operating Temperature ..... -40 to +85° C
(-40 to 185° F)

Storage Temperature ..... -40 to 120° C
(-40 to 250° F)

Relative Humidity (non-condensing) ..... 5% - 95%

Dimension
- **Thickness** ..... 0.46 inch
- **Diameter** ..... 1.69 inch

Standard Finish
- **Foil** ..... Gold
- **Housing** ..... 304 Stainless Steel

Notes:

[1] Lines which may occasionally appear in foil have no effect on product functionality or performance.

[2] Variations in die depth may result in minor variations of tolerances.

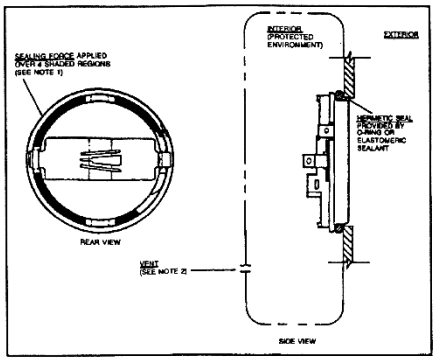
[3] Any variation in the appearance of the 304 stainless steel sheen is merely an outcome of the manufacturing process. There is no difference in functionality or corrosion properties.

Environmental Characteristics & Exposures

Note: The following tests were performed in an environmentally controlled test facility with the ultrasonic sensor housed in a custom designed test enclosure. The test enclosure protects the ultrasonic sensor sides and back from exposure to any foreign matter. The rear of the ultrasonic sensor is vented to atmosphere pressure.

After each test, the ultrasonic sensors were cleaned and dried as necessary. Measurements were then taken at room temperature.

- Storage Temperature..... -40 TO 120° C (-40 to 250 ° F)
- Salt Spray Exposure (96 hours)... 5% salt spray solution at 95 °
- Shock and Vibration..... 50 G peak in each direction along 3 perpendicular axes, pulse duration: 6.5 ms; 6 G's RMS 20-2000 Hz for 6 minutes.
- Water Immersion (24 hours) ..... (vent hole sealed)
- Freeze/Thaw Cycle (4 cycles) ..... Spray with water, drain, expose to -20° F (-30° C) for 20 minutes, allow to warm to room temperature.
- Chemical Exposure..... Gasoline, acetone, sulphur dioxide. Samples sprayed with/ exposed to chemical, then placed in120° F (49° C) / 90% relative humidity environment for 24 hours.



No claims are made for performance without an enclosure providing protection equal to or better than the test enclosure described above. Similarly, no claim is made for performance in any other environments or under any other condition than those controlled conditions described herein.

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