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Series 600 Open Face Ultrasonic Sensor

SensComp's Series 600 Open Face Electrostatic Ultrasonic sensor is specifically intended for operation in air at ultrasonic frequencies. This ultrasonic sensor extends the range of applications for electrostatic ultrasonic sensor technology, is Parylene coated, and the outer housing is made of 304 stainless steel for harsh environments.

Features

Open Face Construction
Parylene Coated
50 kHz Electrostatic Ultrasonic sensor
304 Stainless Steel Housing
Narrow Beam Angle of 15° at -6 dB
Low Ring Characteristics

Part No.

*PID# 604144 – Series 600 Open Face Ultrasonic Sensor
*RoHS Compliant

Benefits

Improved Performance In:
- Dusty Environments
- Harsh Chemical Environments

Splash and Moisture Resistant
Resistant to Organic and Inorganic Solvents
Excellent Receive Sensitivity
Able to Range from 6” to 35’

Applications

Level Measurement in Tanks
Proximity Detection in Harsh Industrial and Agricultural Environments

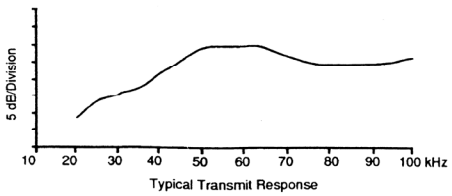
Specifications

Description

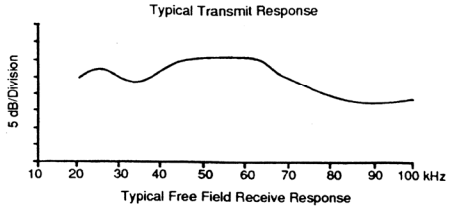
The open face construction of SensComp’s Series 600 Ultrasonic sensor minimizes the potential of dust and powdered material collecting on the front face of the ultrasonic sensor.

The added protection of the Parylene conformal coating makes 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.

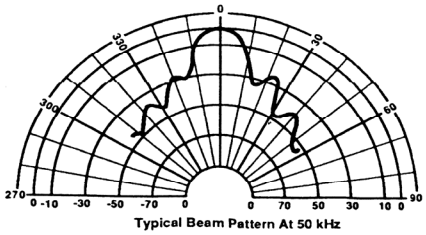
Transmit/Receive Response & Beam Pattern



Typical Transmit Response

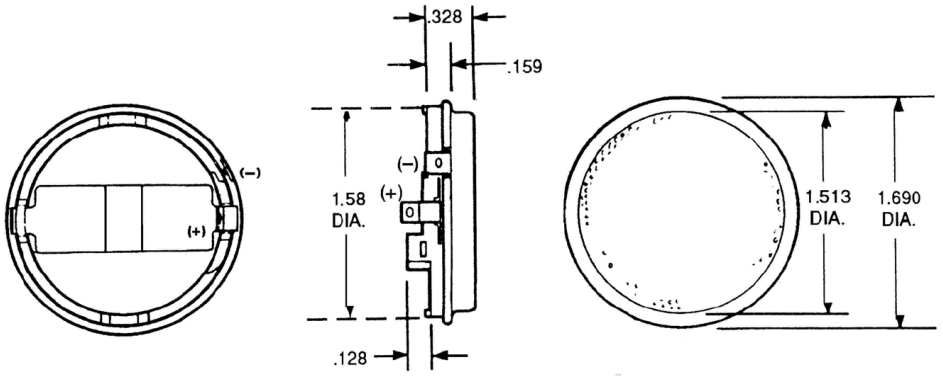


Typical Free Field Receive Response



Typical Beam Pattern At 50 kHz

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

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.

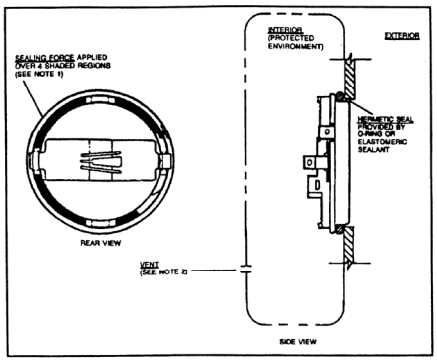
Environmental Characteristics & Exposures

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 minute.
- 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, sulfur 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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