ULTRASONIC TRANSDUCERS

Dependable. Durable.

Your Partner from Prototype to Production

MADE IN THE USA

Precision Tuned Products for Maximum Performance

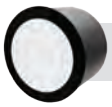
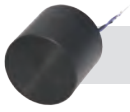
Level and Flow	Automation	Flow	Inventory Control
			

Email: INDUSTRIAL@AIRMAR.COM

www.airmar.com

AIRMAR® TECHNOLOGY CORPORATION

PRODUCT OVERVIEW

Model	Frequency	Diameter	Typical Range	Beamwidth
ART15 	15 kHz	ø 169 mm	1 m to 60 m	6°
AR20 	19.5 kHz	ø 205 mm	80 cm to 40 m	7°
AR30 	30 kHz	ø 106 mm	80 cm to 25 m	12°
ARK30 	30 kHz	ø 106 mm	80 cm to 25 m	12°
PVDF housing for chemically aggressive environments				
AR41 	41 kHz	ø 92.2 mm	35 cm to 15 m	14°
ARK41 	41 kHz	ø 92.2 mm	35 cm to 15 m	14°
PVDF housing for chemically aggressive environments				
AR50 	50 kHz	ø 92.2 mm	30 cm to 10 m	12°
AR50CH 	50 kHz	ø 57 mm	30 cm to 10 m	12°
ARK50-THD 	50 kHz	ø 51 mm 2″ pipe thread	35 cm to 10 m	10°
PVDF housing for chemically aggressive environments				
AT50 	50 kHz	ø 57 mm	35 cm to 10 m	12°
ATK50 	50 kHz	ø 57 mm	35 cm to 10 m	10°
PVDF housing for chemically aggressive environments				

Model	Frequency	Diameter	Typical Range	Beamwidth
ARK50 	50 kHz	ø 92.2 mm	35 cm to 10 m	10°
PVDF housing for chemically aggressive environments				
ARK75-THD 	75 kHz	ø 40.6 mm 1.5″ pipe thread	25 cm to 7 m	14°
PVDF housing for chemically aggressive environments				
AT75 	75 kHz	ø 38 mm	25 cm to 7 m	15°
ATK75 	75 kHz	ø 38 mm	25 cm to 7 m	14°
PVDF housing for chemically aggressive environments				
AT120 	125 kHz	ø 25 mm	20 cm to 3 m	12°
ATK120 	125 kHz	ø 25 mm	20 cm to 3 m	10°
PVDF housing for chemically aggressive environments				
ARK120-THD 	125 kHz	ø 40.6 mm 1.5″ pipe thread	20 cm to 3 m	12°
PVDF housing for chemically aggressive environments				
AT200 	200 kHz	ø 16 mm	12 cm to 2 m	12°
ATK200 	200 kHz	ø 16 mm	12 cm to 2 m	10°
PVDF housing for chemically aggressive environments				
AT225 	225 kHz	ø 13 mm	10 cm to 1.5 m	15°
AT300 	300 kHz	ø 12 mm	5 cm to 50 cm	10°

Airducer_Catalog_rU 04/10/23

AIRMAR® TECHNOLOGY CORPORATION

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AIRMAR TECHNOLOGY CORPORATION

Airmar Technology Corporation designs and manufactures the most advanced ultrasonic transducers on the market today. Pushing the boundaries of technology and delivering creative solutions that meet customers' unique demands has made us a world leader in the advancement of ultrasonic sensor technology.

The Company

Founded in 1982, Airmar has grown to employ over 400 employees at our 11 global locations, 3 of which are state-of-the-art facilities capable of executing every stage of the design and manufacturing process. From 3D modeling to injection molding, and from encapsulation to environmental testing, all work is completed in-house, allowing for end-to-end control and ISO 9001:2015 Certification. Airmar holds dozens of U.S. and foreign patents.

The Products

Airmar's teams of scientists, engineers and technicians design our multi-use ultrasonic transducers for a wide variety of applications and environments. Our transducers deliver proven non-contact sensing performance from equipment such as asphalt pavers, agricultural machinery and water/wastewater systems, as well as many other challenging applications.

Safe, compact and reliable, Airmar's ultrasonic transducers serve as critical components in the development of a myriad of sensors and measurement systems in fields requiring liquid or solid levels, flow control, automation control, proximity sensing, obstacle avoidance, distance measurement, inventory control and more

The Ultrasonic Advantage

Manufactured and factory-tuned in the U.S.A., Airmar's ultrasonic transducers are built for lasting durability and function well in harsh environments. They are rated IP68 and have no moving parts to wear out, so no maintenance is needed. Unlike most alternative measurement solutions, ultrasonic transducers can detect clear, transparent or shiny objects, and are unaffected by color.

Airmar's highly accurate ultrasonic transducers are available in various diameters with and without threads. They operate within a frequency range of 15 kHz to 1 MHz and achieve a sensing range from 5 cm (2 in) to 60 m (196.85 ft). Airmar also offers customized designs to bring your innovative products from concept to production.

The Measuring Principle of Airducer® Ultrasonic Sensors

Sound generated above the human hearing range (typically above 20 kHz) is called ultrasonic. The frequencies of Airmar's standard product line range from 19.5 kHz to 300 kHz. Ultrasonic transducers operate by emitting short bursts of high-frequency sound waves in a cone-shaped pattern (also known as a beam). The echoes reflected by the target are received by the transducer and are used to determine position or measure distance. The distance can be computed using the speed of sound in the transmission medium by measuring the time it takes for the echo to return to the transducer. Using air as an example, at 22°C sound travels at an approximate rate of 345 meters per second. Changes in environmental conditions such as temperature, humidity and pressure can cause a change in the speed of sound in air.

Typical Applications

For AIRDUCER® Ultrasonic Sensors

Level and Flow Measurement and Control

- Liquids, bulk solids, or grains
- In pipe and open channel flow

Process Control

- Distance measurement
- Web tension, roll diameter, web edge, or break detection
- Counting, sorting, or monitoring parts
- Determining loop measurement
- Collision avoidance or proximity sensing
- Robotics

Medical Applications

- Bubble detection

Ultrasonic Air Transducer
Technical Data Sheet

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ART15

15 kHz

AIRDUCER® Ultrasonic Transducer

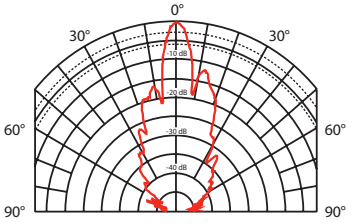
SPECIFICATIONS

Best operating frequency: 15 kHz +/-0.5 kHz
Minimum Transmit Sensitivity at Best Transmit Frequency: 123 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -148 dB re 1V/µPa
Minimum Parallel Resistance @15kHz: 100 Ohm
Minimum and Maximum Sensing Range*: 1-60 m
Beamwidth (@ -3 dB Full Angle): 6° +/-2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 900 V_{pp}
Operating Temperature: -30°C to 60°C
Thermistor Operating Range: -20°C to 60°C
Weight: 2.6 lbs / 1.18 kg
Cable Length: 10 m
Housing Material: Aluminum, static dissipative Kynar, static dissipative PE
Acoustic Window: LDPE

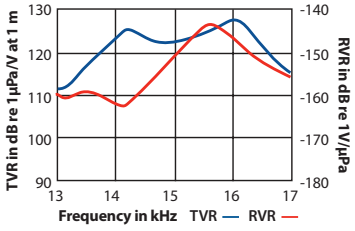
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

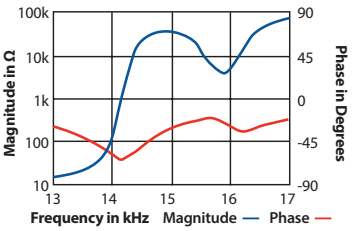
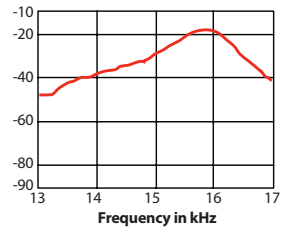


Figure of Merit (Sum of TVR & RVR)



Applications

- Silos
- Wells
- Wastewater facilities
- Large capacity tanks
- River crossings/bridges

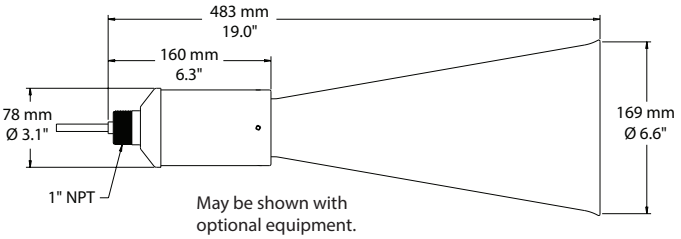
Features

- Delivers long range level measurements up to 60 m (197')
- Extended range without the cost of radar
- Built-in thermistor

Options

- Cable length can be customized
- Also available without thermistor
- Optional cable, cap and thermistor

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

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Ultrasonic Air Transducer
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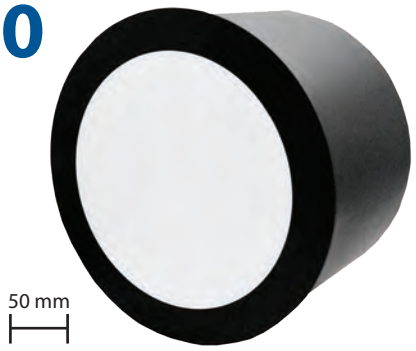
AR20

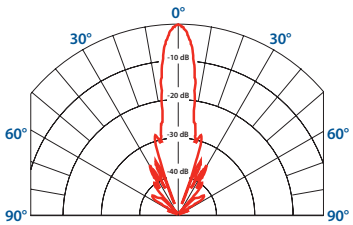


SPECIFICATIONS

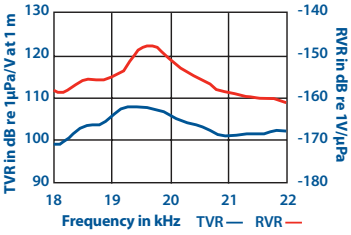
Best Operating Frequency: 19.5 kHz, ±4%
Typical Sensing Range: 80 cm to 40 m
Beamwidth (@ -3 dB Full Angle): 7°, ±2°
Operating Temperature: -40°C to 60°C
Weight: 7.25 kg
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

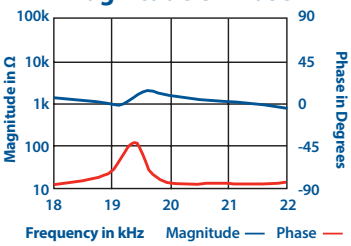
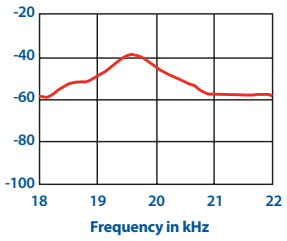


Figure of Merit (Sum of TVR & RVR)



19.5 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Long-range level measurement
- Powder, granular, and liquid, (40 m slurry tanks)

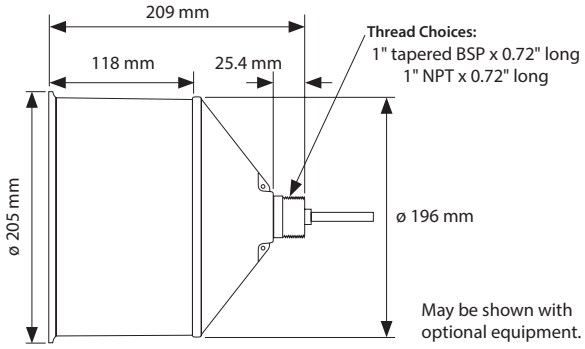
Features

- Long-term reliability
- Low maintenance
- Non-contact
- No moving parts

Options

- Cap with stainless steel 1" NPT or BSP thread mounts
- Cable length can be customized

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

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Ultrasonic Air Transducer
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AR30

30 kHz

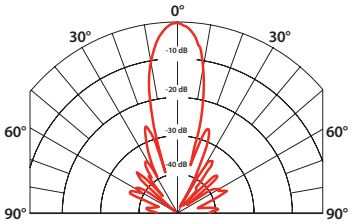
AIRDUCER® Ultrasonic Transducer

SPECIFICATIONS

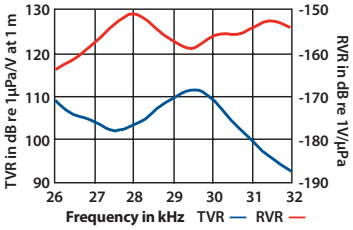
Best Operating Frequency: 30 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 105 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Frequency: -155 dB re 1V/µPa
Minimum Parallel Resistance: 700 Ω, ±30%
Minimum and Maximum Sensing Range*: 60 cm to 30 m
Typical Sensing Range: 80 cm to 25 m
Free (1 kHz) Capacitance: 5,700 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 2,200 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 800 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.
Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

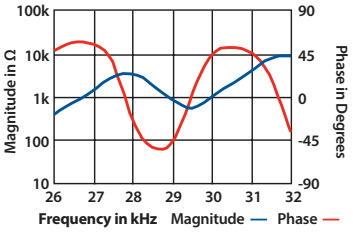
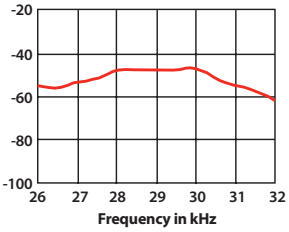


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement
- Proximity
- Obstacle avoidance
- Traffic control

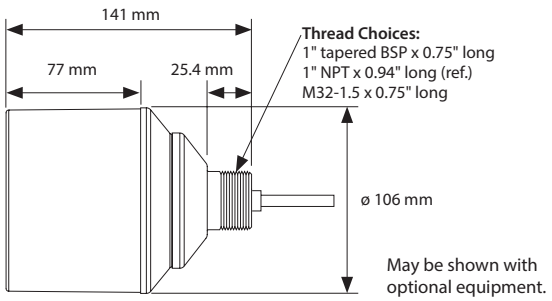
Features

- Rugged sealed construction
- Housing design will accommodate transceiver and signal processing electronics
- Standard internal shielding

Options

- Cylinder housing available with mounting cap kit
- Cable length can be customized
- Mounting cap available in BSP, NPT, or M32 threads
- 10 KΩ thermistor available for temperature compensation
- Available in PVDF housing for use in chemically aggressive environments (ARK30)
- Cap kit sold separately

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

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ARK30

Optional cap kit

SPECIFICATIONS

Best Operating Frequency: 30 kHz, ±4%
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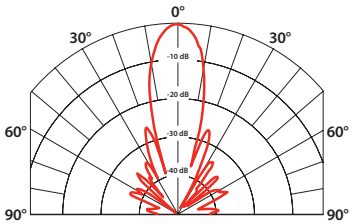
Minimum Receive Sensitivity at Best Receive Frequency: -155 dB re 1V/µPa
Minimum Parallel Resistance: 700 Ω, ±30%
Minimum and Maximum Sensing Range*: 60 cm to 30 m
Typical Sensing Range: 80 cm to 25 m
Free (1 kHz) Capacitance: 5,700 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 2,200 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 800 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

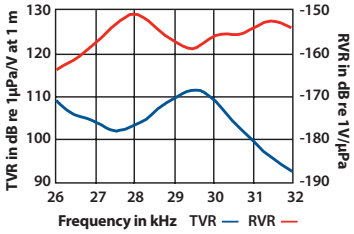
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

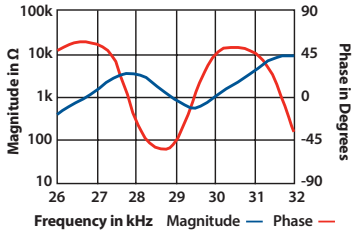
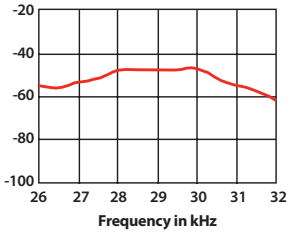


Figure of Merit (Sum of TVR & RVR)



30 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement
- Level measurement in chemically aggressive environments
- Food and beverage processing
- Proximity sensing
- Obstacle avoidance

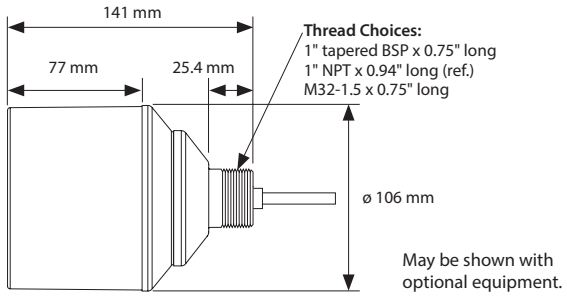
Features

- Rugged sealed construction
- Housing design will accommodate transceiver and signal processing electronics
- Standard internal shielding

Options

- Cable length can be customized
- 10 KΩ thermistor available for temperature compensation
- Mounting caps available in BSP, NPT, or M32 threads
- Available in alternate housing material (AR30)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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AR41


Optional cap kit

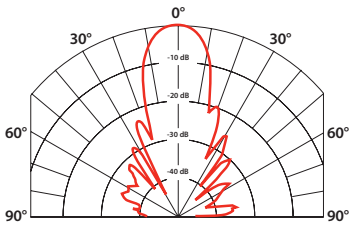
SPECIFICATIONS

Best Operating Frequency: 41 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 110 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Frequency: -160 dB re 1V/µPa
Minimum Parallel Resistance: 150 Ω, ±30%
Minimum and Maximum Sensing Range*: 30 cm to 20 m
Typical Sensing Range: 35 cm to 15 m
Free (1 kHz) Capacitance: 5,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 14°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,800 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 560 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

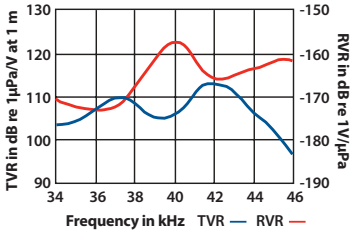
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

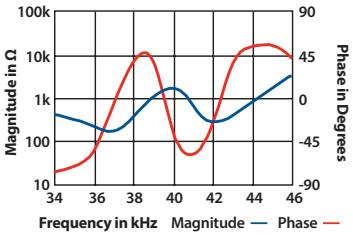
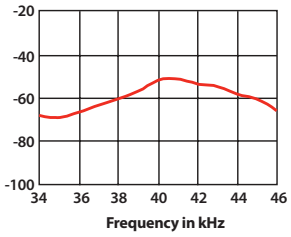


Figure of Merit (Sum of TVR & RVR)



41 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement
- Proximity
- Obstacle avoidance
- Traffic control
- Flow measurement

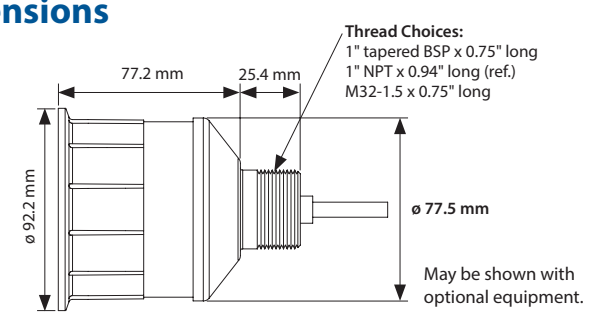
Features

- Rugged sealed construction
- Housing design will accommodate transceiver and signal processing electronics
- Standard internal shielding

Options

- Cable length can be customized
- Mounting cap available in BSP, NPT, or M32 threads
- Available in PVDF housing for use in chemically aggressive environments (ARK41)
- 10 KΩ thermistor available for temperature compensation

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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Technical Data Sheet

ARK41

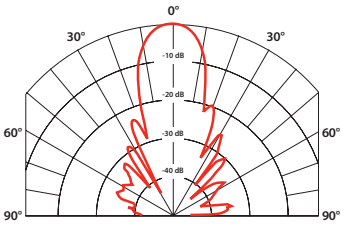
SPECIFICATIONS

Best Operating Frequency: 41 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 108 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Frequency: -175 dB re 1V/µPa
Minimum Parallel Resistance: 200 Ω, ±30%
Minimum and Maximum Sensing Range*: 30 cm to 20 m
Typical Sensing Range: 35 cm to 15 m
Free (1 kHz) Capacitance: 5,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 14°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,800 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 560 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

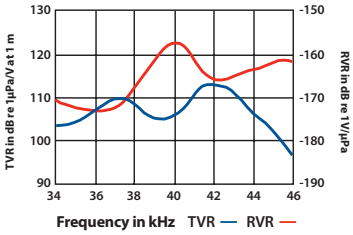
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

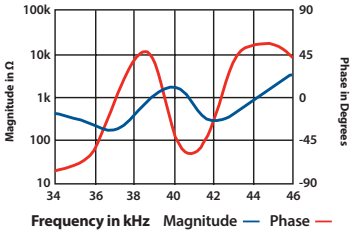
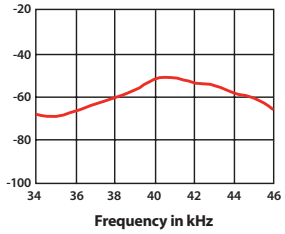


Figure of Merit (Sum of TVR & RVR)



41 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement in chemically aggressive environments
- Food and beverage processing
- Flow monitoring

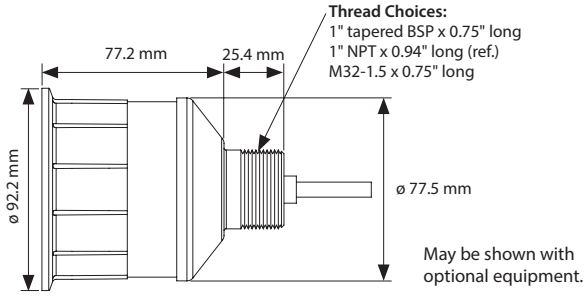
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Housing design will accommodate transceiver and signal processing electronics
- Standard internal shielding

Options

- Cable length can be customized
- 10 KΩ thermistor available for temperature compensation
- Mounting caps available in BSP, NPT, or M32 threads
- Available in alternate housing material (AR41)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

www.airmar.com

AIRMAR® TECHNOLOGY CORPORATION

Ultrasonic Air Transducer
Technical Data Sheet

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AR50


Optional cap kit

50 kHz

AIRDUCER® Ultrasonic Transducer

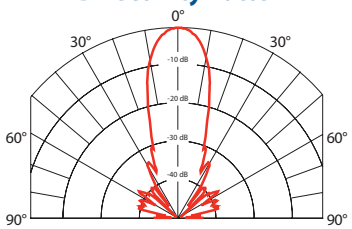
SPECIFICATIONS

Best Operating Frequency: 50 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 106 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -162 dB re 1V/µPa
Minimum Parallel Resistance: 450 Ω, ±30%
Minimum and Maximum Sensing Range*: 25 cm to 15 m
Typical Sensing Range: 30 cm to 10 m
Free (1 kHz) Capacitance: 5,700 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,500 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 560 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

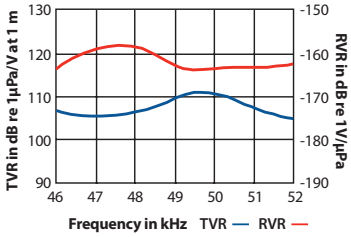
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

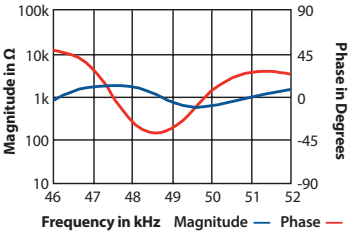
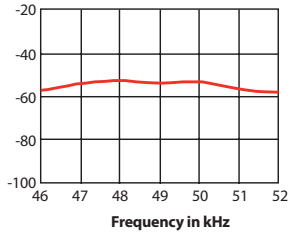


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement
- Open channel flow
- Obstacle avoidance
- Proximity

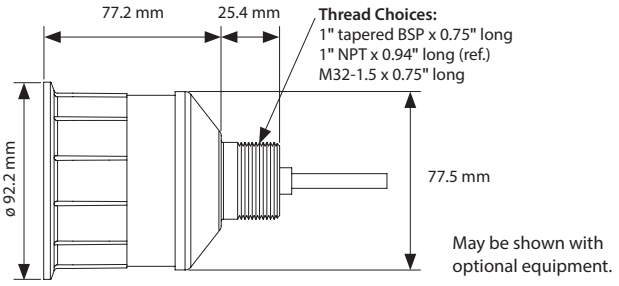
Features

- Rugged sealed construction
- Housing design will accommodate transceiver and signal processing electronics
- Standard internal shielding

Options

- Cable length can be customized
- Mounting cap available in BSP, NPT, or M32 threads
- 10 KΩ thermistor available for temperature compensation
- Available in PVDF housing for use in chemically aggressive environments (ARK50)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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RoHS COMPLIANT

ISO CERTIFIED

www.airmar.com

AIRMAR® TECHNOLOGY CORPORATION

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AR50CH

50 kHz

AIRDUCER® Ultrasonic Transducer

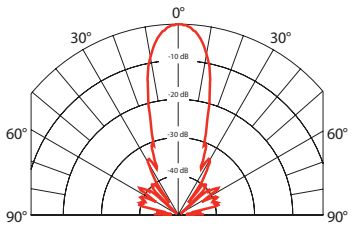
SPECIFICATIONS

Best Operating Frequency: 50 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 106 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -162 dB re 1V/µPa
Minimum Parallel Resistance: 450 Ω, ±30%
Minimum and Maximum Sensing Range*: 25 cm to 15 m
Typical Sensing Range: 30 cm to 10 m
Free (1 kHz) Capacitance: 5,700 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,500 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 160 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

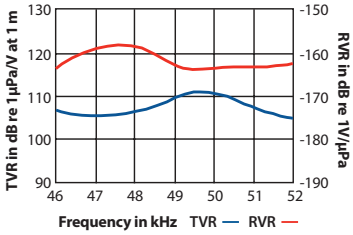
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

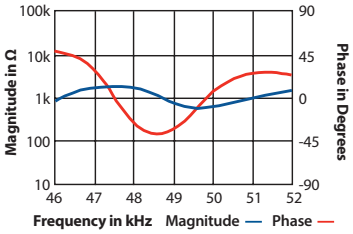
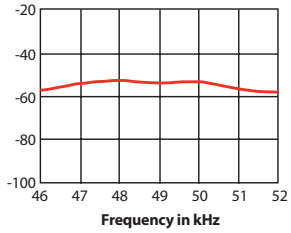


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement
- Open channel flow
- Obstacle avoidance
- Proximity
- Robotics

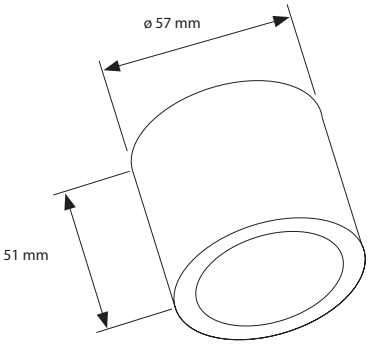
Features

- Improved deadband performance as compared to AT50
- Rugged sealed construction
- Cylindrical design allows for installation in various applications

Options

- 10 KΩ thermistor available for temperature compensation
- Available in alternate housing material (ATK50)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

www.airmar.com

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Technical Data Sheet

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ARK50-THD

50 mm

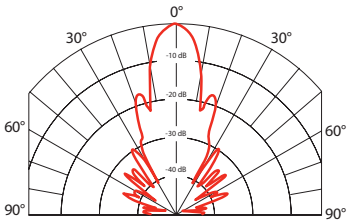
SPECIFICATIONS

Best Operating Frequency: 50 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 105 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -170 dB re 1V/µPa
Minimum Parallel Resistance: 350 Ω, ±30%
Minimum and Maximum Sensing Range*: 30 cm to 15 m
Typical Sensing Range: 35 cm to 10 m
Free (1 kHz) Capacitance: 5,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 10°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,000 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 250 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

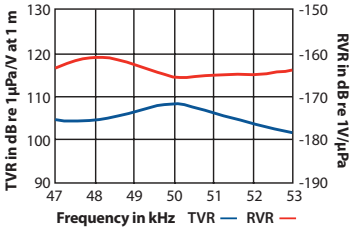
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

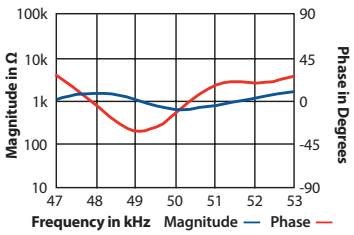
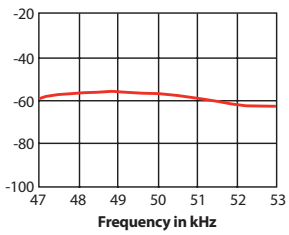


Figure of Merit (Sum of TVR & RVR)



50 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement in chemically aggressive environments
- Food and beverage processing
- Flow monitoring

Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Threaded design allows for installation in various applications
- Standard internal shielding

Options

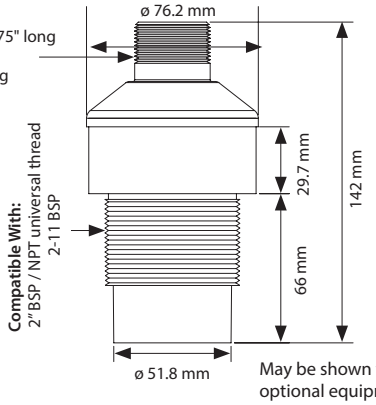
- Nut—2" BSP thread
- Complete assembly available with standard cable lengths
- 10 KΩ thermistor available for temperature compensation
- 12 mm extension sleeve
- Mounting caps available in BSP, NPT, or M32 threads
- Optional PCB standoff configuration lengths available

Dimensions

Thread Options:
1" tapered BSP x 0.75" long
1" NPT x 0.94" long
M32-1.5 x 0.75" long

Optional cap kit

Housing design will accommodate transceiver and signal processing electronics



May be shown with optional equipment.

Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

www.airmar.com

ARK50THD_rS 04/10/23

Ultrasonic Air Transducer
Technical Data Sheet

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AT50

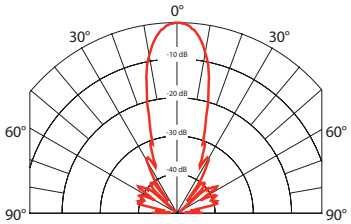
SPECIFICATIONS

Best Operating Frequency: 50 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 106 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.:-162 dB re 1V/µPa
Minimum Parallel Resistance: 450 Ω, ±30%
Minimum and Maximum Sensing Range*: 30 cm to 15 m
Typical Sensing Range: 35 cm to 10 m
Free (1 kHz) Capacitance: 5,700 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,500 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 160 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

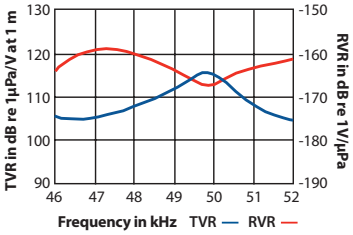
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

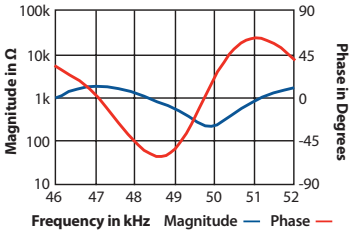
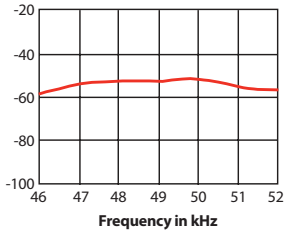


Figure of Merit (Sum of TVR & RVR)



50 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement
- Open channel flow
- Proximity
- Obstacle avoidance
- Robotics

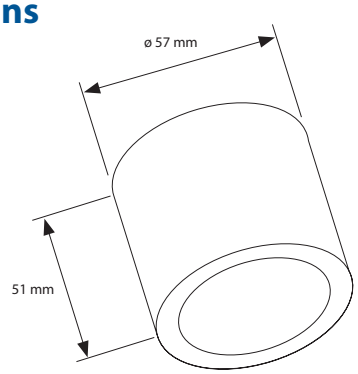
Features

- Rugged sealed construction
- Cylindrical design allows for installation in various applications

Options

- 10 KΩ thermistor available for temperature compensation

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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RoHS COMPLIANT ISO CERTIFIED **www.airmar.com**

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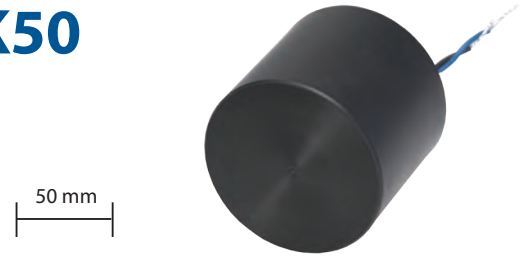
ATK50



50 kHz

AIRDUCER® Ultrasonic Transducer

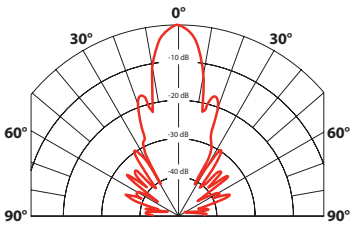
SPECIFICATIONS

Best Operating Frequency: 50 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 105 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.:-170 dB re 1V/µPa
Minimum Parallel Resistance: 350 Ω, ±30%
Minimum and Maximum Sensing Range*: 30 cm to 15 m
Typical Sensing Range: 35 cm to 10 m
Free (1 kHz) Capacitance: 5,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 10°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,000 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 190 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

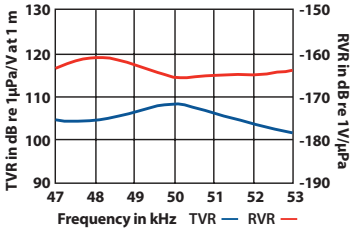
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

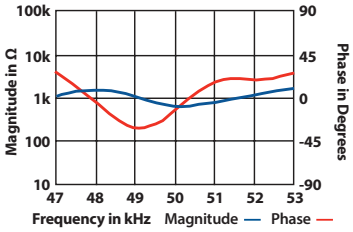
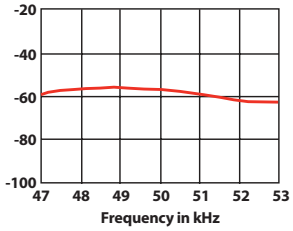


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement in chemically aggressive environments
- Food and beverage processing
- Proximity sensing
- Obstacle avoidance

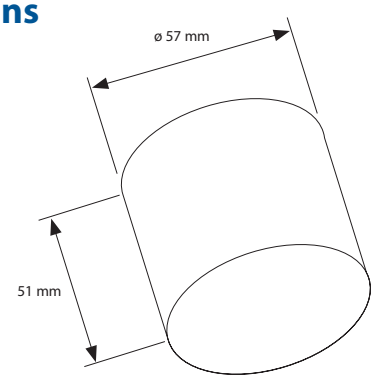
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Cylindrical design allows for installation in various applications

Options

- 10 KΩ thermistor available for temperature compensation

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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RoHS COMPLIANT

ISO CERTIFIED

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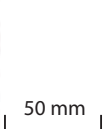
ARK50



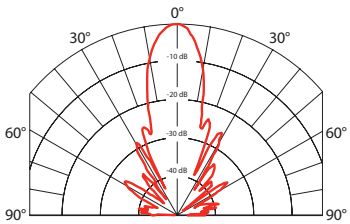
SPECIFICATIONS

Best Operating Frequency: 50 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 105 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -170 dB re 1V/µPa
Minimum Parallel Resistance: 350 Ω, ±30%
Minimum and Maximum Sensing Range*: 30 cm to 15 m
Typical Sensing Range: 35 cm to 10 m
Free (1 kHz) Capacitance: 5,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 10°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,000 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 250 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

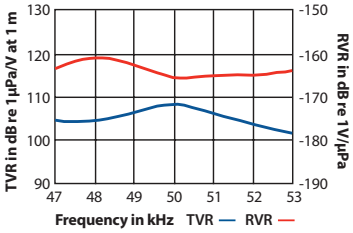
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

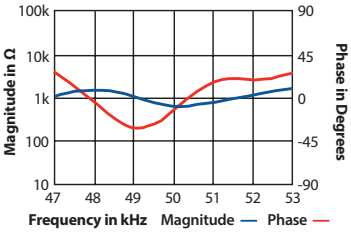
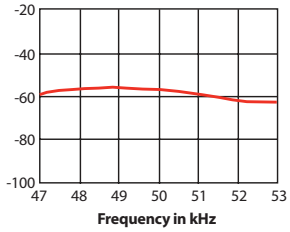


Figure of Merit (Sum of TVR & RVR)



50 kHz

AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement in chemically aggressive environments
- Food and beverage processing
- Flow monitoring
- Proximity sensing

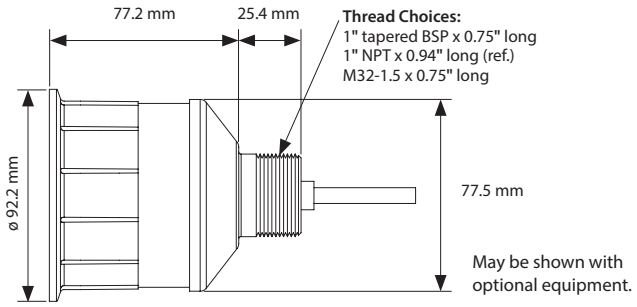
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Housing design will accommodate transceiver and signal processing electronics
- Standard internal shielding

Options

- Cable length can be customized
- 10 KΩ thermistor available for temperature compensation
- Mounting cap available in BSP, NPT or M32 threads
- Available in alternate housing (AR50)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

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AIRMAR® TECHNOLOGY CORPORATION

Ultrasonic Air Transducer
Technical Data Sheet

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ARK75-THD

75 kHz
AIRDUCER® Ultrasonic Transducer

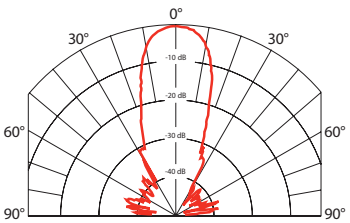
SPECIFICATIONS

Best Operating Frequency: 75 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 106 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -165 dB re 1V/µPa
Minimum Parallel Resistance: 150 Ω, ±30%
Minimum and Maximum Sensing Range*: 20 cm to 10 m
Typical Sensing Range: 25 cm to 7 m
Free (1 kHz) Capacitance: 1,850 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 14°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,000 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 250 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

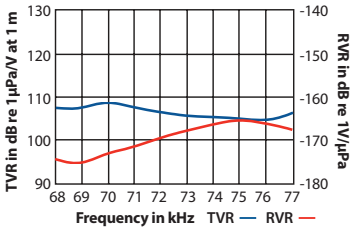
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

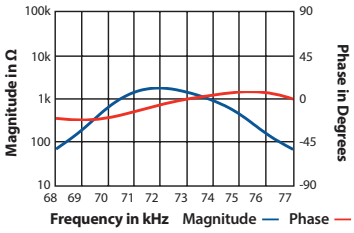
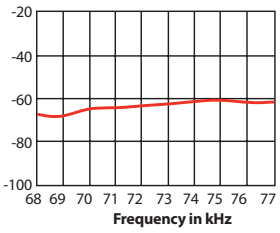


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement in chemically aggressive environments
- Food and beverage processing
- Flow monitoring

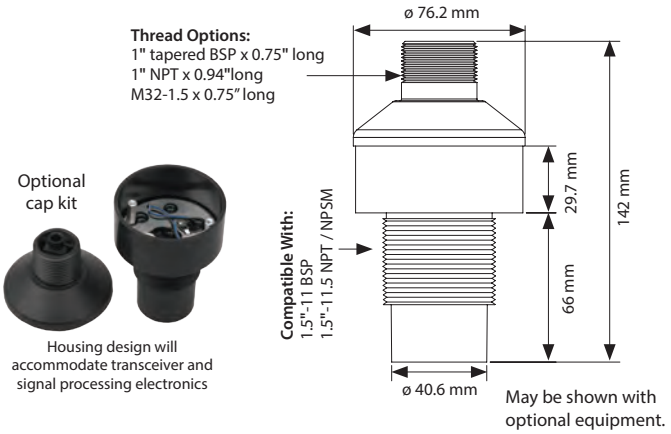
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Threaded design allows for installation in various applications
- Standard internal shielding

Options

- Nut—1.5" BSP thread
- Cable length can be customized
- 10 KΩ thermistor available for temperature compensation
- 12 mm extension sleeve
- Mounting caps available in BSP, NPT, or M32 threads
- Optional PCB standoff configuration lengths available

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

www.airmar.com

ARK75-THD_rS 04/10/23

Ultrasonic Air Transducer
Technical Data Sheet

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AT75

75 kHz
AIRDUCER® Ultrasonic Transducer

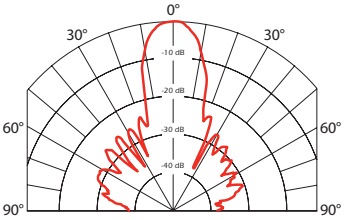
SPECIFICATIONS

Best Operating Frequency: 75 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 111 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -162 dB re 1V/µPa
Minimum Parallel Resistance: 170 Ω, ±30%
Minimum and Maximum Sensing Range*: 20 cm to 10 m
Typical Sensing Range: 25 cm to 7 m
Free (1 kHz) Capacitance: 1,850 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 15°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,000 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 45 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

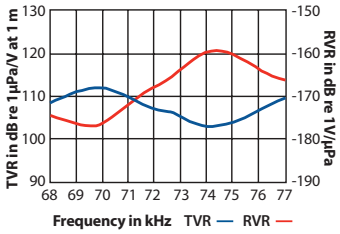
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

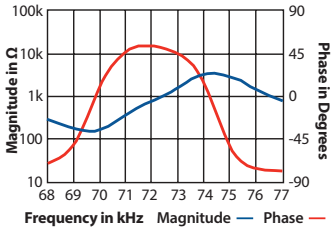
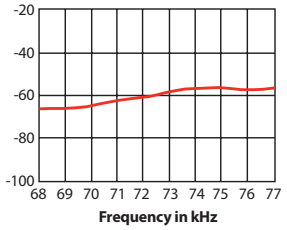


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement
- Open channel flow
- Proximity
- Obstacle avoidance
- Robotics

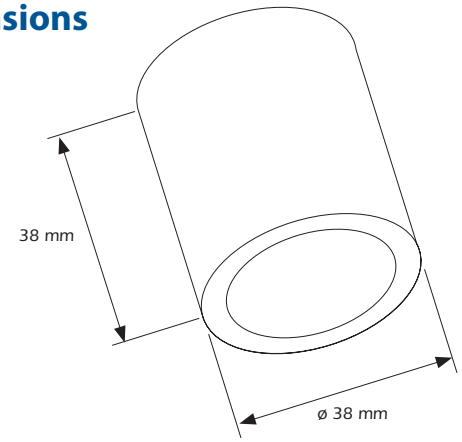
Features

- Rugged sealed construction
- Cylindrical design allows for installation in various applications

Options

- Complete assembly or kit versions
- Available in PVDF housing for use in chemically aggressive environments (ATK75)
- 10 KΩ thermistor available for temperature compensation

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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RoHS COMPLIANT

ISO CERTIFIED

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AIRMAR® TECHNOLOGY CORPORATION

Ultrasonic Air Transducer
Technical Data Sheet

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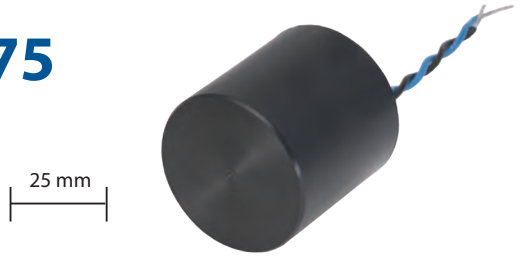
ATK75



75 kHz
AIRDUCER® Ultrasonic Transducer

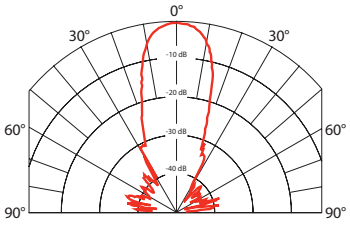
SPECIFICATIONS

Best Operating Frequency: 75 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 111 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -162 dB re 1V/µPa
Minimum Parallel Resistance: 170 Ω, ±30%
Minimum and Maximum Sensing Range*: 20 cm to 10 m
Typical Sensing Range: 25 cm to 7 m
Free (1 kHz) Capacitance: 1,850 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 15°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 1,000 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 45 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

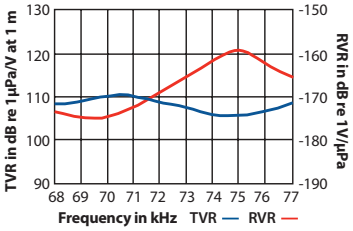
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

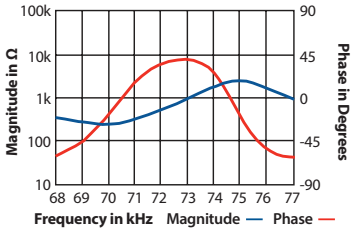
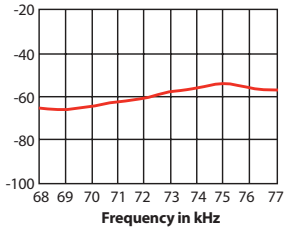


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement in chemically aggressive environments
- Automation control
- Food and beverage processing
- Proximity sensing
- Obstacle avoidance

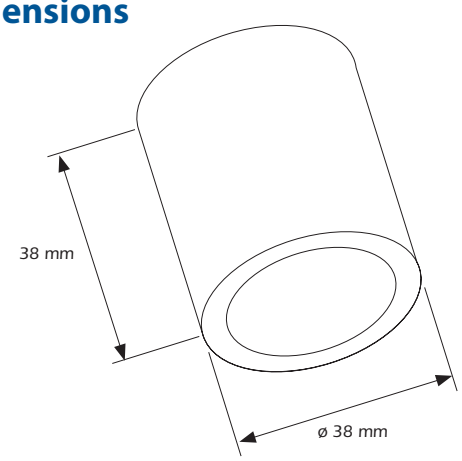
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Cylindrical design allows for installation in various applications

Options

- 10 KΩ thermistor available for temperature compensation
- Available in alternate housing (AT75)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

www.airmar.com

ATK75_rP 04/10/23

Ultrasonic Air Transducer
Technical Data Sheet

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AT120

125 kHz
AIRDUCER® Ultrasonic Transducer

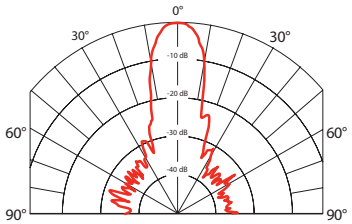
SPECIFICATIONS

Best Operating Frequency: 125 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 107 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -169 dB re 1V/µPa
Minimum Parallel Resistance: 420 Ω, ±30%
Minimum and Maximum Sensing Range*: 15 cm to 7 m
Typical Sensing Range: 20 cm to 3 m
Free (1 kHz) Capacitance: 1,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 800 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 20 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

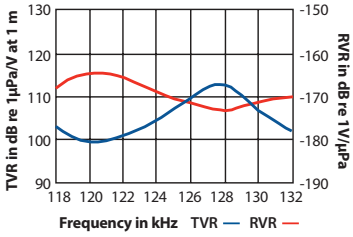
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

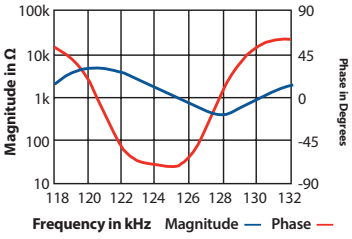
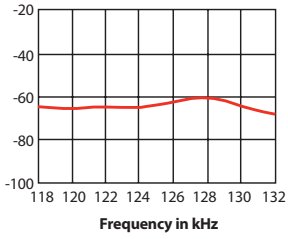


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement
- Automation control
- Proximity
- Obstacle avoidance
- Robotics

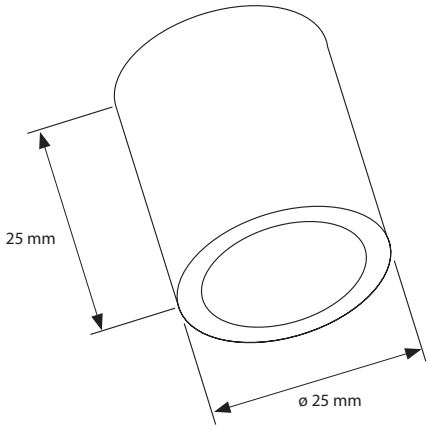
Features

- Rugged sealed construction
- Cylindrical design allows for installation in various applications

Options

- Available in PVDF housing for use in chemically aggressive environments (ATK120)
- 10 KΩ thermistor available for temperature compensation

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

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ATK120

125 kHz
AIRDUCER® Ultrasonic Transducer

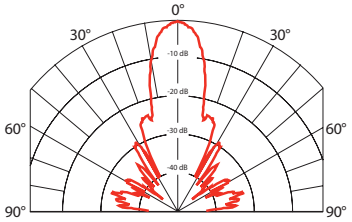
SPECIFICATIONS

Best Operating Frequency: 125 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 102 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -172 dB re 1V/µPa
Minimum Parallel Resistance: 500 Ω, ±30%
Minimum and Maximum Sensing Range*: 15 cm to 5 m
Typical Sensing Range: 20 cm to 3 m
Free (1 kHz) Capacitance: 1,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 10°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 800 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 30 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

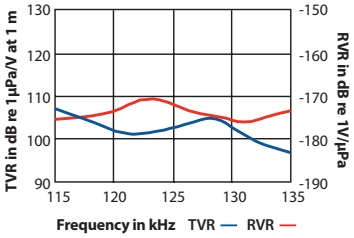
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

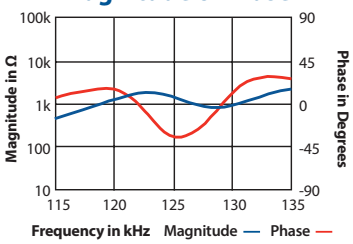
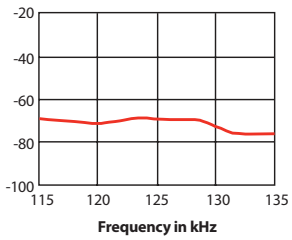


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement in chemically aggressive environments
- Automation control
- Food and beverage processing
- Proximity sensing
- Obstacle avoidance

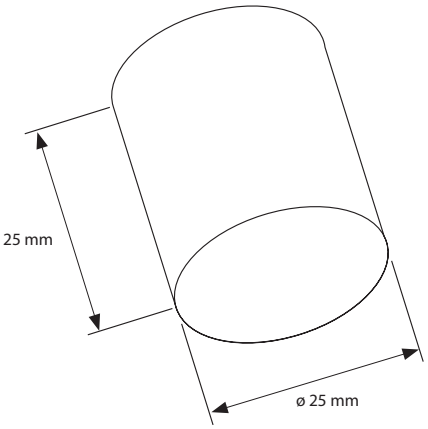
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Cylindrical design allows for installation in various applications

Options

- 10 KΩ thermistor available for temperature compensation
- Available in alternate housing (AT120)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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RoHS COMPLIANT
ISO CERTIFIED
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ATK120_rR 04/10/23

AIRMAR® TECHNOLOGY CORPORATION

Ultrasonic Air Transducer
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ARK120-THD

125 kHz
AIRDUCER® Ultrasonic Transducer

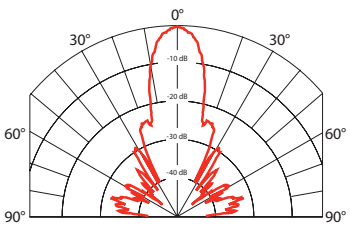
SPECIFICATIONS

Best Operating Frequency: 125 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 102 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -172 dB re 1V/µPa
Minimum Parallel Resistance: 500 Ω, ±30%
Minimum and Maximum Sensing Range*: 15 cm to 5 m
Typical Sensing Range: 20 cm to 3 m
Free (1 kHz) Capacitance: 1,000 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 800 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 250 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

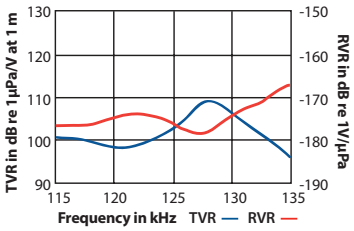
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

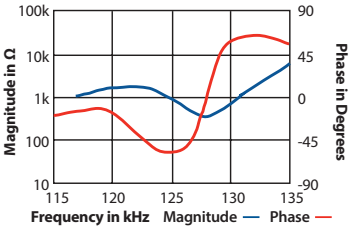
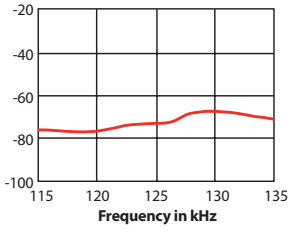


Figure of Merit (Sum of TVR & RVR)



Applications

- Level measurement in chemically aggressive environments
- Food and beverage processing

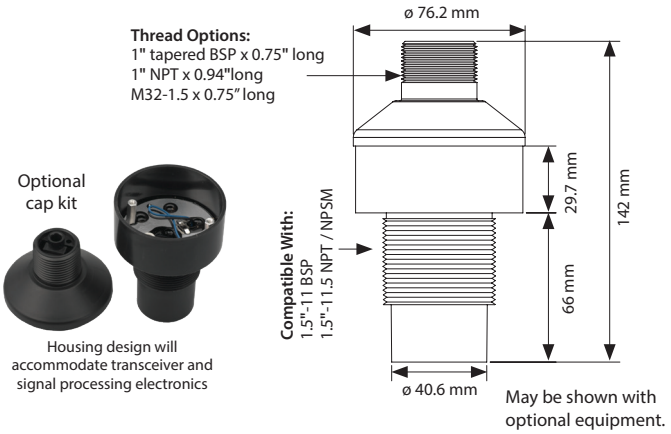
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Threaded design allows for installation in various applications
- Standard internal shielding

Options

- Nut—1.5" BSP thread
- Complete assembly available with standard cable lengths
- 10 KΩ thermistor available for temperature compensation
- 12 mm extension sleeve
- PCB standoff configuration lengths available

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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RoHS COMPLIANT

ISO CERTIFIED

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Ultrasonic Air Transducer
Technical Data Sheet

Airmar ultrasonic transducers deliver the highest level of performance in the most challenging environments and they are the key component for our customers success and their applications. Our precision tuned air-ranging transducers are tried and true performers, even when used for difficult tasks. American-made from the highest quality materials, Airmar's ultrasonic transducers provide reliable, long-lasting excellence to any measurement system.

AT200

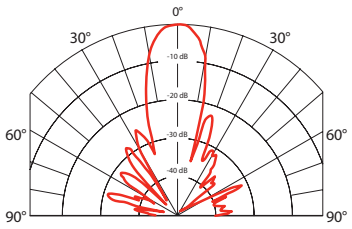
SPECIFICATIONS

Best Operating Frequency: 200 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 105 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -174 dB re 1V/µPa
Minimum Parallel Resistance: 180 Ω, ±30%
Minimum and Maximum Sensing Range*: 10 cm to 3 m
Typical Sensing Range: 12 cm to 2 m
Free (1 kHz) Capacitance: 500 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 12°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 500 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 6 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

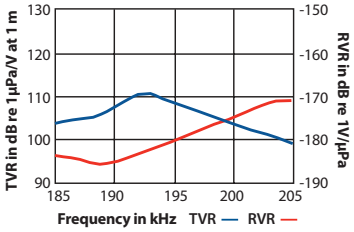
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

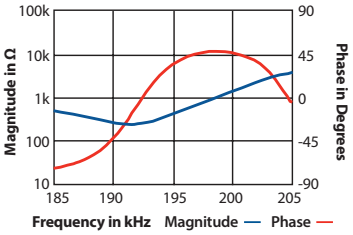
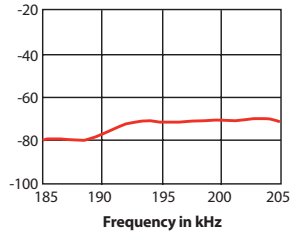


Figure of Merit (Sum of TVR & RVR)



200 kHz
AIRDUCER® Ultrasonic Transducer

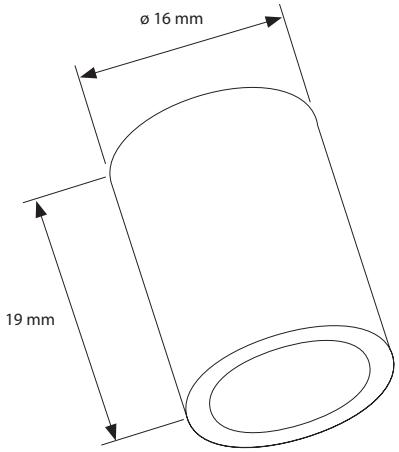
Applications

- Level measurement
- Automation control
- Proximity
- Obstacle avoidance
- Robotics

Features

- Rugged sealed construction
- Cylindrical design allows for installation in various applications
- Available in PVDF housing for use in chemically aggressive environments (ATK200)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

RoHS COMPLIANT

ISO CERTIFIED

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AIRMAR® TECHNOLOGY CORPORATION

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ATK200

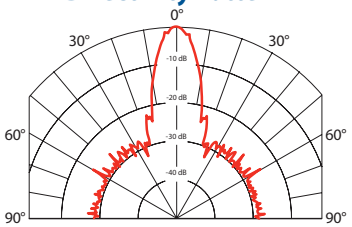
SPECIFICATIONS

Best Operating Frequency: 200 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 102 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -180 dB re 1V/µPa
Minimum Parallel Resistance: 300 Ω, ±30%
Minimum and Maximum Sensing Range*: 10 cm to 3 m
Typical Sensing Range: 12 cm to 2 m
Free (1 kHz) Capacitance: 500 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 10°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 500 V_{pp}
Operating Temperature: -40°C to 60°C
Weight: 6 g
Housing Material: Kynar® 720
Acoustic Window: Kynar® 720

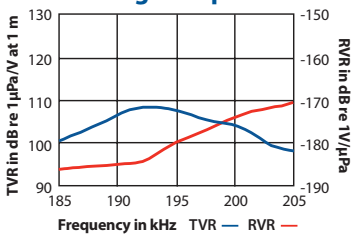
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

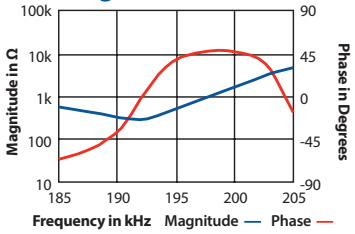
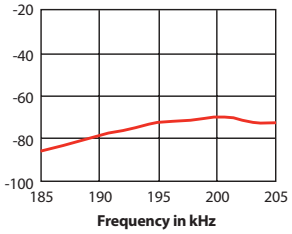


Figure of Merit (Sum of TVR & RVR)



200 kHz
AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement in chemically aggressive environments
- Automation control
- Food and beverage processing
- Proximity sensing
- Obstacle avoidance
- Flow monitoring

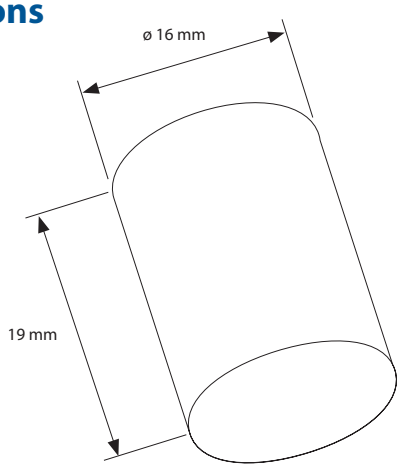
Features

- Rugged one-piece PVDF housing is U.S. FDA compliant
- Cylindrical design allows for installation in various applications

Options

- Available in alternate housing (AT200)

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

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AT225

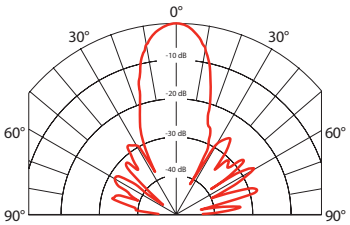
SPECIFICATIONS

Best Operating Frequency: 228 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 101 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -180 dB re 1V/µPa
Minimum Parallel Resistance: 400 Ω, ±30%
Minimum and Maximum Sensing Range*: 8 cm to 2.5 m
Typical Sensing Range: 10 cm to 1.5 m
Free (1 kHz) Capacitance: 450 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 15°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 500 V_{pp}
Operating Temperature: -40°C to 90°C
Weight: 4 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

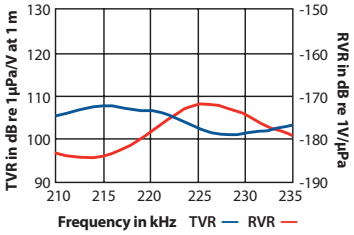
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

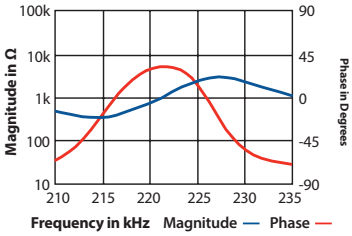
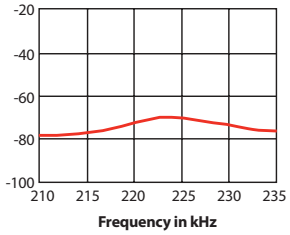


Figure of Merit (Sum of TVR & RVR)



228 kHz
AIRDUCER® Ultrasonic Transducer

Applications

- Level measurement
- Automation control
- Proximity
- Obstacle avoidance
- Robotics
- Flow

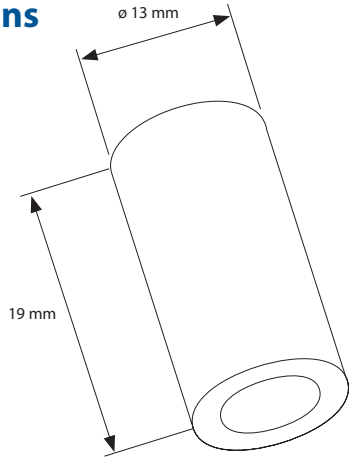
Features

- Rugged sealed construction
- Cylindrical design allows for installation in various applications

Options

- Optional circuit board mounting pins
- 2 wire version is standard. Also available with coaxial cable.

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

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Technical Data Sheet

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AT300

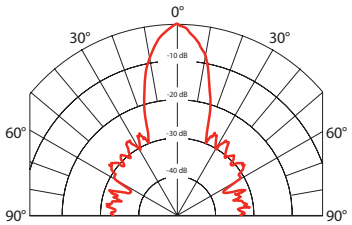
SPECIFICATIONS

Best Operating Frequency: 300 kHz, ±4%
Minimum Transmit Sensitivity at Best Transmit Frequency: 95 dB re 1µPa/V at 1 m
Minimum Receive Sensitivity at Best Receive Freq.: -180 dB re 1V/µPa
Minimum Parallel Resistance: 650 Ω, ±30%
Minimum and Maximum Sensing Range*: 4 cm to 1 m
Typical Sensing Range: 5 cm to 50 cm
Free (1 kHz) Capacitance: 450 pF, ±20% pF
Beamwidth (@ -3 dB Full Angle): 10°, ±2°
Maximum Driving Voltage (2% Duty Cycle Tone Burst): 200 V_{pp}
Operating Temperature: -40°C to 70°C
Weight: 4 g
Housing Material: Glass filled polyester
Acoustic Window: Glass reinforced epoxy

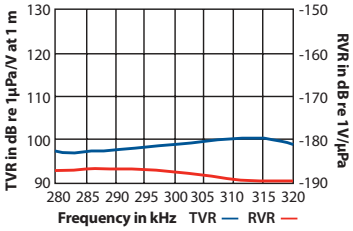
***Pulse-Echo Mode:** Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

Note: Optimally, performance measurements should be taken when the transducer reaches a steady state.

Directivity Pattern



Transmit & Receive Voltage Response



Impedance Magnitude & Phase

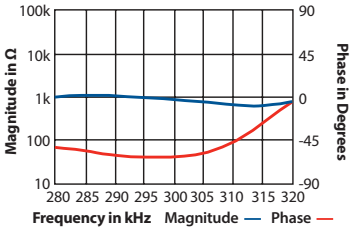
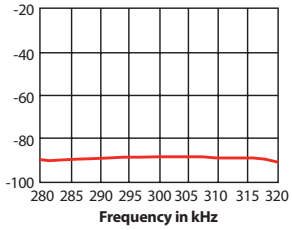


Figure of Merit (Sum of TVR & RVR)



300 kHz
AIRDUCER® Ultrasonic Transducer

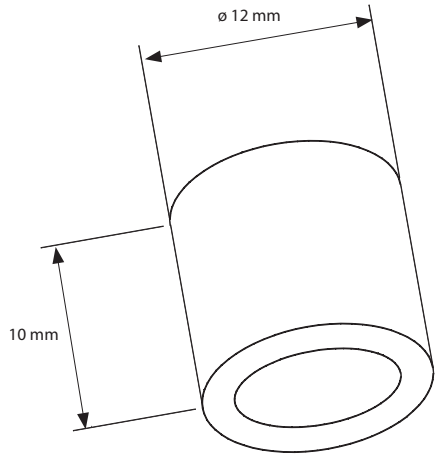
Applications

- Level measurement
- Automation control
- Proximity
- Obstacle avoidance
- Robotics

Features

- Rugged sealed construction
- Cylindrical design allows for installation in various applications
- Short-range measurement capabilities

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

T1 Developer Board

Airmar's T1 Developer's Transceiver Module can be used for evaluation of AIRDUCER® Transducers.

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AT300_rR 04/10/23

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Ultrasonic Air Transducer Transceiver Module

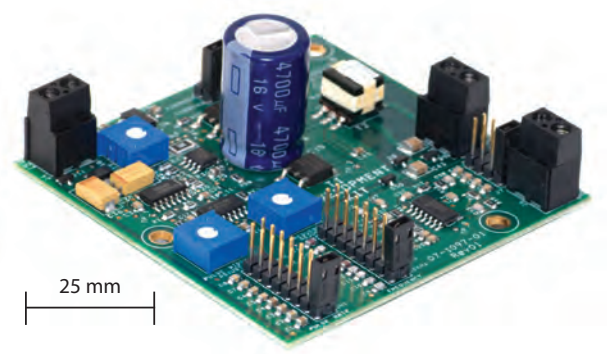
Technical Data Sheet

T1

Developer's Module for Evaluation of AIRDUCER® Transducers

Designed for fast and easy evaluation of Airmar's Ultrasonic Transducers, we are pleased to offer our versatile, T1 Transceiver Module. The entire frequency range of 30 kHz to 300 kHz Airmar transducers can be driven by the T1. With transmit voltage output of 200 V_{pp} to 500 V_{pp} and adjustable pulse width and frequency, the suitability of a piezoelectric transducer for a specific application can be clearly assessed.

A selectable receiver gain up to 60 dB allows amplification of echoes and viewing of waveforms on any oscilloscope. The T1 is a compact printed circuit board 76 mm x 76 mm and offers convenient connections to our ultrasonic transducer and your power supply.



SPECIFICATIONS

Transmit Voltage: 200 V_{pp} to 500 V_{pp}
Selectable Receiver Gain: 0 dB, 20 dB, 40 dB, or 60 dB
Frequencies:
30 kHz, 41 kHz, 50 kHz, 75 kHz, 120 kHz, 200 kHz, 225 kHz or 300 kHz
Supply Voltage: 15 VDC
Printed Circuit Board Size: 76 mm x 76 mm

30-300 kHz

Transceiver Module

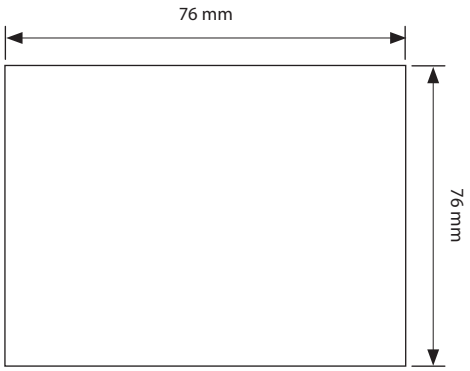
Applications

- Echo-ranging
- Liquid-level detection
- Obstacle avoidance
- Proximity sensing

Features

- Frequency and pulse width adjustable

Dimensions



Additional Resources

Theory of Operations

Applying Ultrasonic Technology

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