

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.

## ARK50-THD



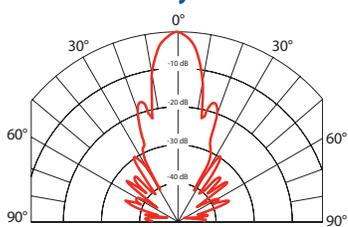
### SPECIFICATIONS

**Best Operating Frequency:** 50 kHz,  $\pm 4\%$   
**Minimum Transmit Sensitivity at Best Transmit Frequency:** 105 dB re  $1\mu\text{Pa}/\text{V}$  at 1 m  
**Minimum Receive Sensitivity at Best Receive Freq.:** -170 dB re  $1\text{V}/\mu\text{Pa}$   
**Minimum Parallel Resistance:** 350  $\Omega$ ,  $\pm 30\%$   
**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,  $\pm 20\%$  pF  
**Beamwidth (@ -3 dB Full Angle):**  $10^\circ$ ,  $\pm 2^\circ$   
**Maximum Driving Voltage (2% Duty Cycle Tone Burst):** 1,000 V<sub>pp</sub>  
**Operating Temperature:** -40°C to 90°C  
**Weight:** 250 g  
**Housing Material:** Kynar<sup>®</sup> 720  
**Acoustic Window:** Kynar<sup>®</sup> 720

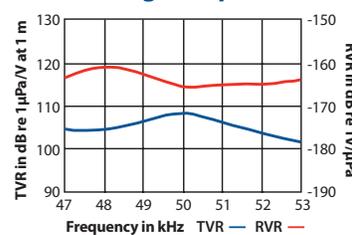
\*Pulse-Echo Mode: Minimum and maximum ranges are best case scenarios. Actual range may vary, depending on drive circuitry and signal processing.

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

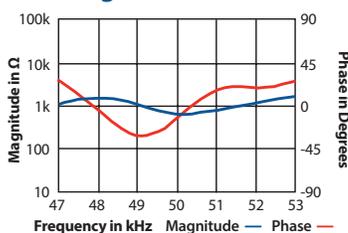
### Directivity Pattern



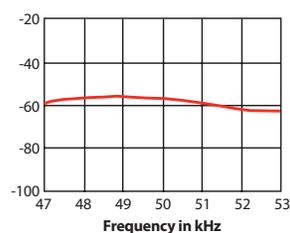
### Transmit & Receive Voltage Response



### Impedance Magnitude & Phase



### Figure of Merit (Sum of TVR & RVR)



## 50 kHz

## AIRDUCER<sup>®</sup> Ultrasonic Transducer

### Applications

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

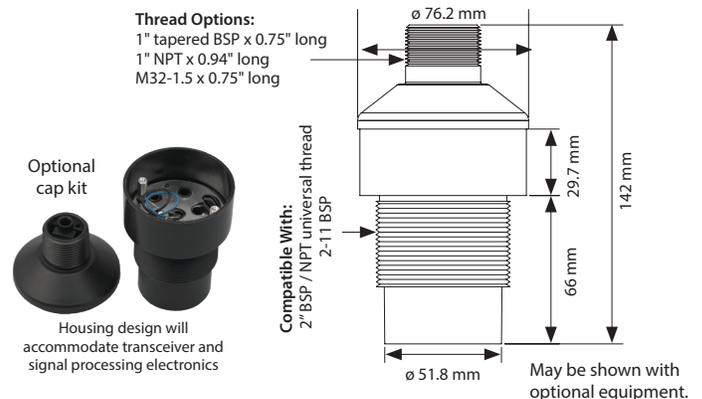
### Features

- 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 K $\Omega$  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<sup>®</sup> Transducers.