Unictron
Technologies Corp.

Piezoceramics & Ultrasonic transducers

Product Catalog

Sensing and Connecting

V.11507

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About us

Unictron Technologies Corporation: Pioneering Excellence in Piezoceramics

Welcome to Unictron Technologies Corporation, the forefront of the piezoceramic industry. Established in 1988, we've become Taiwan's largest and most esteemed piezo manufacturer, serving satisfied customers across six continents.

Our commitment to unparalleled quality is exemplified by our adherence to RoHS, REACH, and ISO 14001 standards. With TS 16494 certification, we attest our competence in the automotive sector. Our expert team, backed by years of experience, specializes in tailoring solutions for diverse ultrasonic applications. From pioneering piezoceramics to intricate transducers, our capabilities traverse the spectrum, showcasing our dynamic competence.

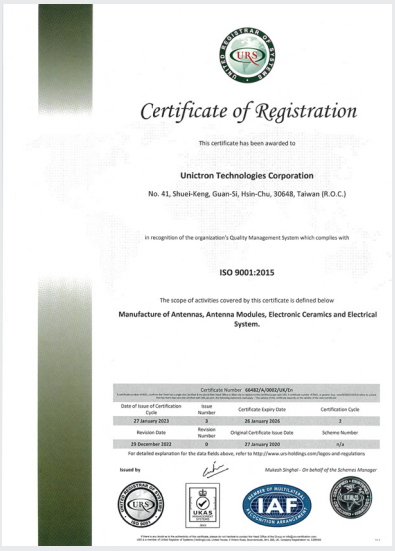
By choosing Unictron, you're embracing a legacy of excellence that's continuously shaping the landscape of piezoceramics. Here, we offer a glimpse into the vast possibilities of Unictron – a world where innovation, quality, and customer-centricity converge. The future of piezoceramics is here - a realm we're pioneering.

Certificates

Pioneering Quality: Upholding the Highest Standards

Our commitment to delivering unparalleled quality is exemplified by the stringent standards we uphold. We don't merely follow standards; we set them. Adhering to RoHS and REACH regulations is a non-negotiable aspect of our operations. Additionally, we proudly hold the ISO 14001 certification for Hazardous Substances Management, underlining our dedication to ethical and environmentally responsible manufacturing practices. Our TS 16494 certification further attests our competence in the automotive sector.

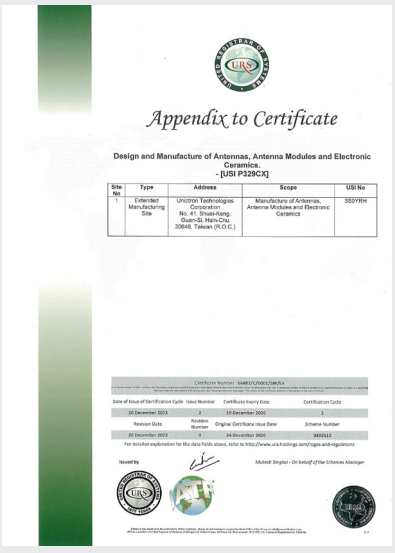
ISO 9001:2015
(Taoyuan Factory)



ISO 9001:2015
(Hsinchu Factory)

ISO 14001:2015

IATF 16949:2016
(Taoyuan Factory)



IATF 16949:2016
(Hsinchu Factory)

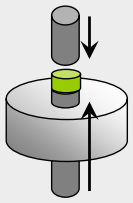
ISO45001:2018

Core Competence & Manufacturing Capabilities

Facilities That Define Excellence: Where Innovation Resides

As Taiwan's foremost piezoelectric ceramics provider, Unictron offers an diverse array of products and services meticulously tailored to diverse requirements. Over three decades, our engineering teams have mastered material formulation and ceramic processing for exceptional performance. Our products span diverse dimensions, precisely aligned with your specifications. Our advanced manufacturing facilities further amplify this prowess, utilizing dry presses, cold isostatic presses, tape casters, extruders, multilayer equipment, and precision machining tools. Unictron stands as a testament to innovative precision, where formulation excellence underpins our superior manufacturing and customization capabilities.

1



Forming

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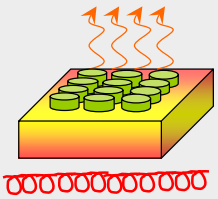

Sintering

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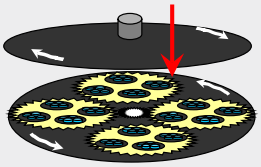

Lapping

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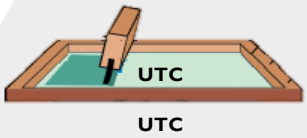
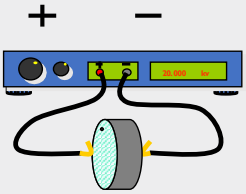


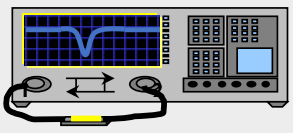
Electrode Printing & Firing

5



Poling

6



Testing

Piezo Ceramics Material Properties

Material Properties for Hard and Lead Free Piezoelectric Materials

Characteristics	Symbol (unit)	Hard Material Type						
		HPZT-A	HPZT-B	HPZT-C	HPZT-D	HPZT-E	PT-A	BT-A
Relative Dielectric Constant	$\varepsilon_{33}/\varepsilon_0$	1000	1200	1350	1550	1700	200	1200
Dissipation Factor	tanδ (%)	0.6	0.7	0.6	0.5	0.6	1.0	0.8
Electro-mechanical Coupling Factor	k_p (%)	60	58	62	63	62	2	33
	k_{31} (%)	34	33	34	35	36	-	20
	k_{33} (%)	68	67	68	69	71	50	49
	k_t (%)	48	48	46	46	49	53	32
Mechanical Q	Qm	900	800	1300	1600	1600	700	600
Piezoelectric Constant	d_{31} (10^{-12}m/V)	-120	-125	-135	-155	-160	-	-60
	d_{33} (10^{-12}m/V)	250	280	300	340	350	63	150
	g_{31} (10^{-3}V·m/N)	-13.6	-11.8	-11.3	-11.3	-10.6	-	-5.6
	g_{33} (10^{-3}V·m/N)	28.2	26.4	25.1	24.8	23.3	35.6	14.1
Curie Temperature	Tc (°C)	320	310	325	300	310	260	115
Density	ρ (g/cm3)	7.75	7.70	7.65	7.70	7.60	6.70	5.50
Potential Applications		Ultrasonic Generator, Sonar, Machining, Welding, Nebulizer						

Material Properties for Soft Piezoelectric Materials

Characteristics	Symbol (unit)	Soft Material Type							
		SPZT-A	SPZT-B	SPZT-C	SPZT-D	SPZT-E	SPZT-F	SPZT-G	SPZT-H
Relative Dielectric Constant	$\varepsilon_{33}/\varepsilon_0$	1800	2100	2500	3000	4000	4800	5600	3650
Dissipation Factor	tanδ (%)	1.8	2.0	2.0	2.5	2.8	2.8	3.0	2.5
Electro-mechanical Coupling Factor	k_p (%)	60	68	67	68	64	64	61	65
	k_{31} (%)	36	41	42	41	39	39	38	40
	k_{33} (%)	70	68	70	70	71	69	69	71
	k_t (%)	49	50	50	51	49	48	48	50
Mechanical Q	Qm	85	80	80	75	70	60	60	70
Piezoelectric Constant	d_{31} (10^{-12}m/V)	-180	-240	-250	-280	-285	-290	-300	-280
	d_{33} (10^{-12}m/V)	420	490	520	600	650	680	720	630
	g_{31} (10^{-3}V·m/N)	-11.3	-12.9	-11.3	-10.5	-8.0	-6.8	-6.1	-9.0
	g_{33} (10^{-3}V·m/N)	26.4	26.4	23.5	22.6	18.4	16.0	14.5	19.4
Curie Temperature	Tc (°C)	380	350	335	270	235	200	180	245
Density	ρ (g/cm3)	7.75	7.75	7.70	7.60	7.65	7.60	7.60	7.60
Potential Applications		Flow Meter, Distance/Level Sensor, Haptic, Actuator							

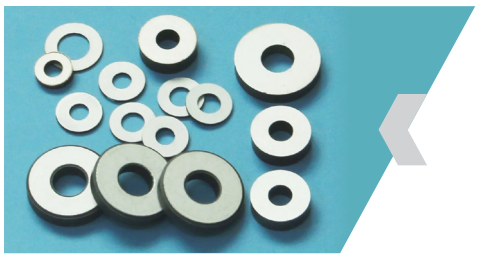
* For requests for wafer forms thinner than 0.40 mm, please contact us via p-sales@unictron.com.
**Data represent typical material values. Actual production values may vary ±10% for dielectric properties and ±5% for electromechanical and physical properties.
***Note: PT: Lead titanate, BT: Barium titanate

Shapes and Dimensions of the Piezoelectric Elements

With a cumulative experience of nearly 30 years in the field, our engineering teams are masters of material formulation and ceramic processing technologies. Empowered by state-of-the-art characterization and manufacturing facilities, we excel in crafting products of diverse sizes and shapes tailored to your specific applications.

Disc

	Bulk	Thin Plate
Diameter (mm)	3~90	3~30
Thickness (mm)	0.4~20 (depend on diameter)	0.1~0.4

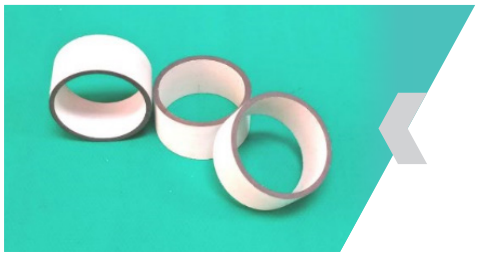


Ring

	Bulk	Thin Plate
Outer Diameter (mm)	10~60	10~30
Inner Diameter (mm)	5~50 (depend on outer diameter)	5~20
Thickness (mm)	0.4~20	0.2~0.4

Rectangle

	Bulk	Thin Plate
Width (mm)	1~90 (depend on length)	5~40
Length (mm)	1~208 (depend on width)	5~40
Thickness (mm)	0.4~20	0.1~0.4



Tube

	Bulk
Outer Diameter (mm)	10~60
Inner Diameter (mm)	5~50 (depend on outer diameter)
Height (mm)	10~25

Arc/Dome/Trapezoid

We offer customization of shapes and dimensions for Arc, Dome, Trapezoid, and more, tailored to your complex requirements

* Electrodes can be provided as a full surface or wrap around (WAE).

Piezo Composites

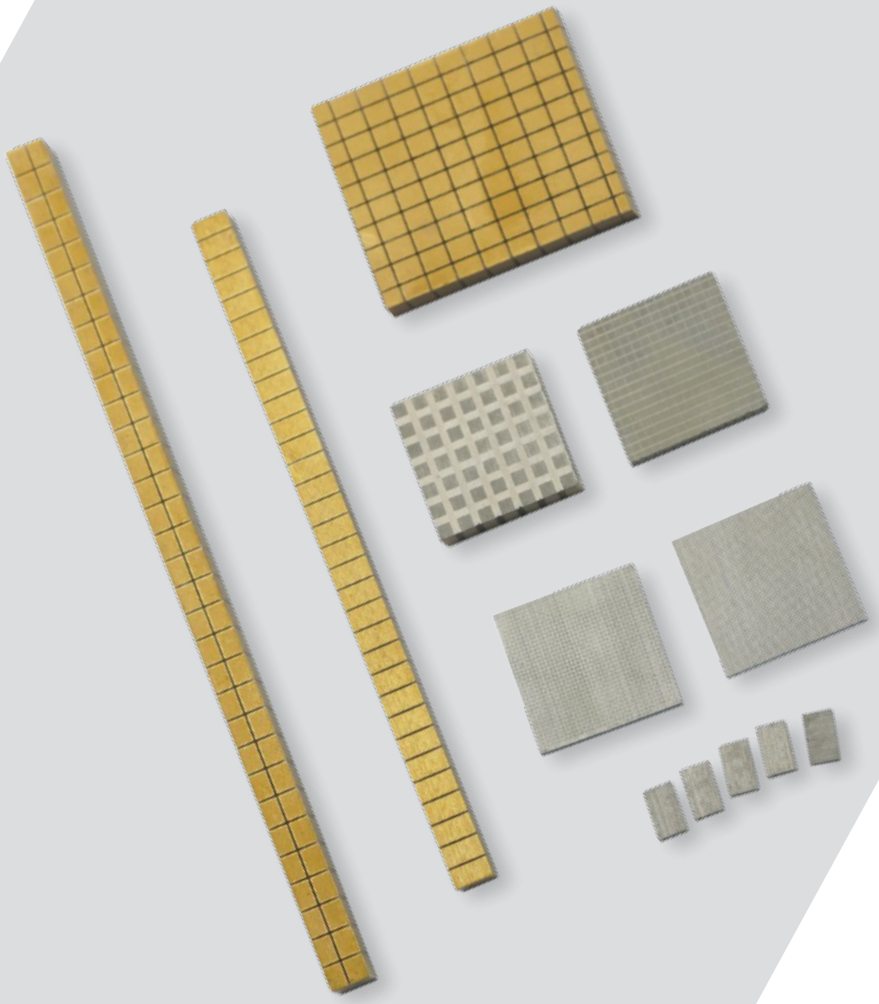
Piezoelectric composites consist of piezoelectric ceramics, such as PZT, combined with diverse constituents like epoxy resin. This combination synergized ceramics' and polymers' strengths characterized by broad bandwidth, enabling efficacious performance across an extensive frequency spectrum. These composites boast excellent flexibility, processing capabilities, and effective acoustic impedance matching with various media such as water, air, and biological tissues.

Characteristics

- Lower acoustic impedances
- High coupling coefficients
- High bandwidth and lower Qm
- Excellent durability and reliability
- High power
- Tailor-made (Frequency, Electrode, Dimension, and more)

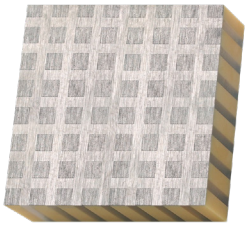
Applications

- High power transducer
- Hydrophone



Model: GEY6
P/N: H2KGEY62000500

200 kHz 1-3 Composite



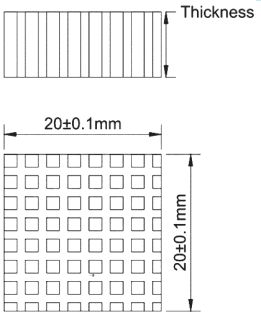
Characteristics

- Lower acoustic impedances
- High coupling coefficients
- High bandwidth and lower Qm
- Excellent durability and reliability

Specifications

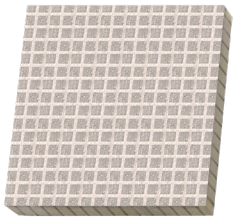
Operation Frequency	200	kHz
Capacitance at 1 kHz	600	pF
Impedance at Resonant Frequency	<270	Ω
Bandwidth	>40	kHz
Electro-mechanical Coupling Coefficient (Kt)	>60	%
Maximum Operational Temperature	100	°C

Dimensions



Model: GEY3
P/N: H2KGEY35000500

500 kHz 1-3 Composite



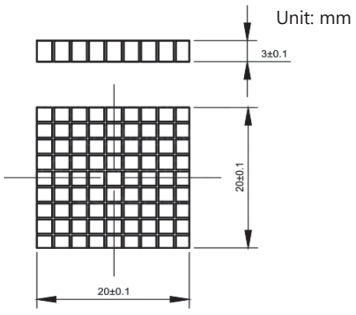
Characteristics

- Lower acoustic impedances
- High coupling coefficients
- High bandwidth and lower Qm
- Excellent durability and reliability

Specifications

Operation Frequency	500	kHz
Capacitance at 1 kHz	1300	pF
Impedance at Resonant Frequency	<50	Ω
Bandwidth	>100	kHz
Electro-mechanical Coupling Coefficient (Kt)	>60	%
Maximum Operational Temperature	100	°C

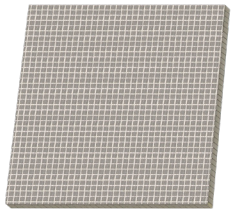
Dimensions



* All specifications are subject to change without notice.

Model: GEY4
P/N: H2KGEY41000600

1000 kHz 1-3 Composite



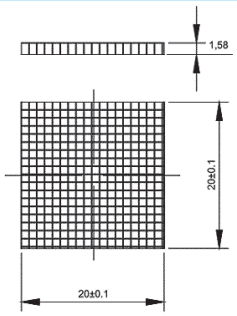
Characteristics

- Lower acoustic impedances
- High coupling coefficients
- High bandwidth and lower Qm
- Excellent durability and reliability

Specifications		
Operation Frequency	1000	kHz
Capacitance at 1 kHz	2740	pF
Impedance at Resonant Frequency	<50	Ω
Bandwidth	>200	kHz
Electro-mechanical Coupling Coefficient (Kt)	>60	%
Maximum Operational Temperature	100	°C

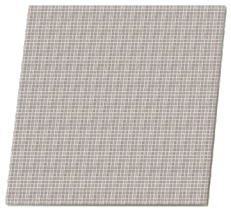
Dimensions

Unit: mm



Model: GEY5
P/N: H2KGEY52000600

2000 kHz 1-3 Composite

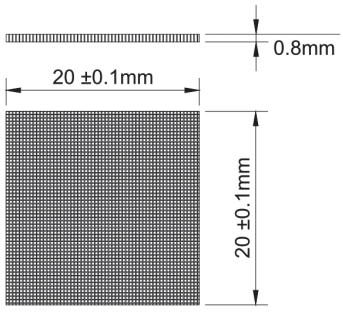


Characteristics

- Lower acoustic impedances
- High coupling coefficients
- High bandwidth and lower Qm
- Excellent durability and reliability

Specifications		
Operation Frequency	2000	kHz
Capacitance at 1 kHz	5200	pF
Impedance at Resonant Frequency	<10	Ω
Bandwidth	>420	kHz
Electro-mechanical Coupling Coefficient (Kt)	>60	%
Maximum Operational Temperature	100	°C

Dimensions



* All specifications are subject to change without notice.

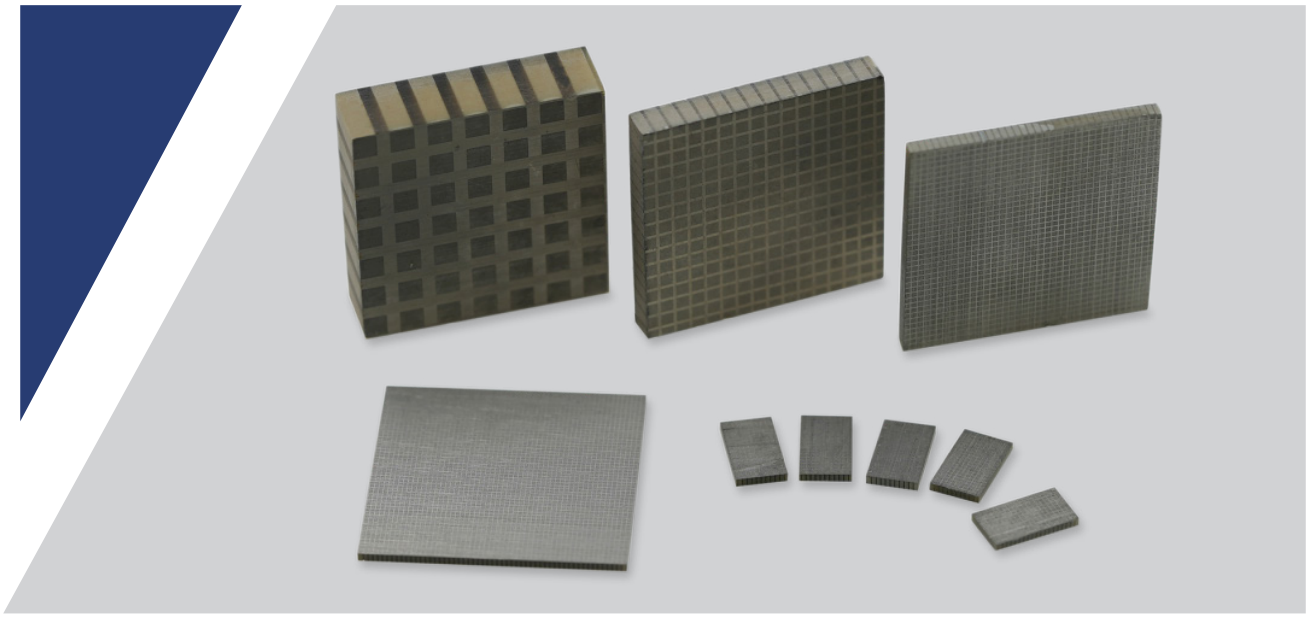
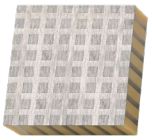
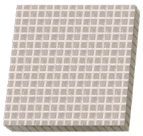


Table of 1–3 composite PZT

P/N		H2KGEY62000500	H2KGEY35000500	H2KGEY41000600	H2KGEY52000600
					
Operation Frequency	kHz	200	500	1000	2000
Electro-mechanical Coupling Coefficient (Kt)	%	> 60	> 60	> 60	> 60
Bandwith	kHz	> 40	> 100	> 200	> 420
Maximum Operational Temperature	°C	100	100	100	100
Electrode	-	Ni Alloy	Ni Alloy	Ni Alloy	Ni Alloy
PZT Material	-	Soft PZT	Soft PZT	Soft PZT	Soft PZT

* Customized dimension, electrode, and frequency are available.

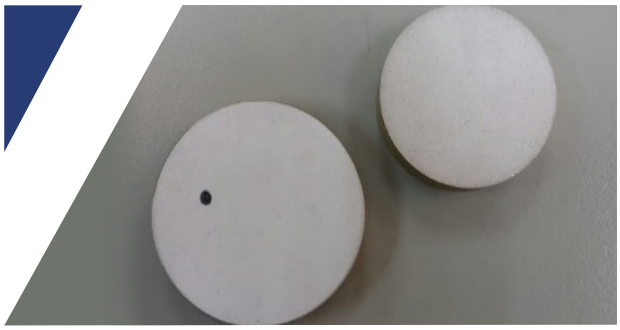
* All specifications are subject to change without notice.

UPC Elements

We proudly introduce our premier material for your underwater transducers -- Unictron's porosity controlled (UPC) elements. UPC elements are piezoceramic composites featuring a controlled porous structure within a PZT ceramic matrix. Transducers made of UPC materials show a significantly broader bandwidth that works in a precise sweep pattern of many frequencies with good efficiency and high-power output. Unictron is the largest manufacturer of porosity controlled broadband piezoceramics in the world for commercial CHIRP sonar applications.

Characteristics

- Work in sweeping pattern of many frequencies
- With good efficiency and high power output
- Better S/N ratio
- Better resolution
- Low Q factor
- Lower ringing



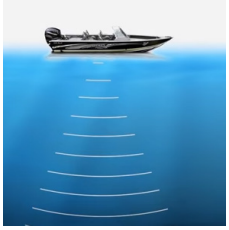
Applications

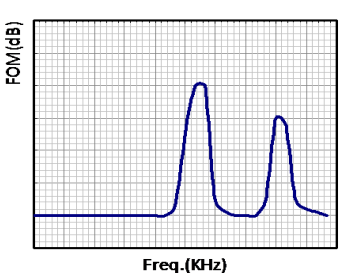
CHIRP (Compressed High Intensity Radar Pulse) based broadband transducer for fish finders and echo sounders.

Advantages of Broadband Transducer

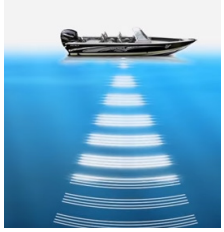
Traditional commercial Sonar transducers operate only at one discrete frequency or dual frequencies while broadband transducers can work in sweeping pattern of multiple frequencies with excellent efficiency and high power output. This allows them to achieve better resolution and depth capability.

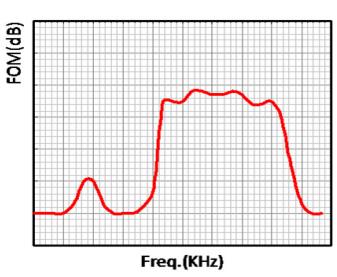
Traditional
Typical bandwidth is about **5–7 KHz**





Broadband
Typical bandwidth is about **40–60 KHz**



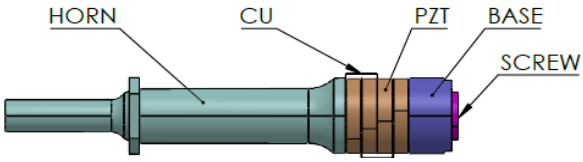


Bolt–Clamped Langevin Transducer (BLT)

The structure of the Bolt-Clamped Langevin Transducer (BLT) ultrasonic transducer plays a crucial role in various applications, particularly in healthcare sectors. For instance, in the medical field, our BLTs find their niche in applications ranging from medical scalpels and dental scalers to atomization of specialized viscous medicine. Across industries, they're vital for cutting, cleaning, welding of plastic, metals, and specialized materials. Whether it's BLTs simulation, design, or manufacturing, Unictron stands as your dependable partner. Our BLTs can be meticulously engineered using unique in-house piezoceramic material formulations, ensuring the precise resonant frequency and amplitude required.

Characteristics

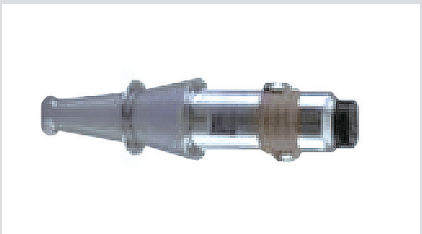
- High power output, high efficiency
- High quality factor, low heat generation
- Excellent frequency stability
- Excellent mechanical strength and durability



Schematic Drawing

Applications

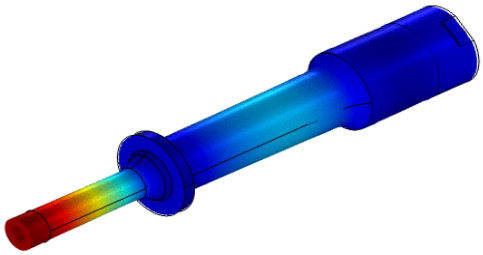
Applications of BLT type Transducer:



Welding

Ultrasonic Cleaner

Simulation of Transducer

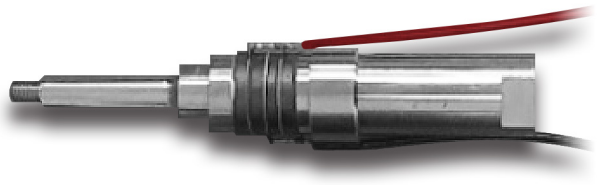


Characteristics

- High power output, high efficiency
- High-quality factor, low heat generation
- Excellent stability of frequency
- Excellent mechanical strength and durability

Specifications for Ultrasonic Scalpel			
Capacitance at 1 kHz	*1	2.1 ± 20%	nF
Resonant Frequency	*1	55.5~56.3	kHz
Resonant Impedance Zr	*1	≤60	Ohm
Displacement of Horn Tip	(Power 40W)	~ 18	μm
*1 Measured by KEYSIGNT E4990A at 25°C room temperature.			

Dental Scaler



Characteristics

- Excellent stability of frequency
- High power output, high efficiency
- High-quality factor, low heat generation
- Excellent mechanical strength and durability

Specifications for Ultrasonic Scalpel			
Capacitance at 1 kHz	*1	TBD	nF
Resonant Frequency	*1	28~45	kHz
Resonant Impedance Zr	*1	TBD	Ohm
*1 Measured by KEYSIGNT E4990A at 25°C room temperature.			

* All specifications are subject to change without notice.

20 kHz BLT transducer

Model Name: B20150A1

1/2-20UNF

Major Applications

Plastic welding

Specifications

Power	max. 2	kW
Operation Frequency	20	kHz
Capacitance	11000 - 12000	pF
Transducer Material	Aluminum	

20 kHz BLT transducer

Model Name: B20163A1

1/2-20UNF

Major Applications

Plastic welding
Metal tube sealing welding

Specifications

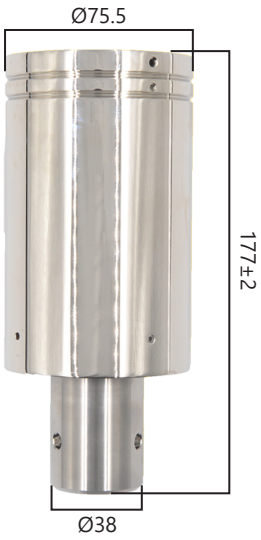
Power	max. 3	kW
Operation Frequency	20	kHz
Capacitance	18000 - 20000	pF
Transducer Material	Aluminum	

* All specifications are subject to change without notice.

20 kHz BLT transducer

Model Name: B20177A1

1/2-20UNF



Major Applications

Metal welding

Specifications

Power	max. 4	kW
Operation Frequency	20	kHz
Capacitance	19500 - 22500	pF
Transducer Material	Titanium	

* All specifications are subject to change without notice.

15 kHz BLT with Conical Booster Series

Major Applications

Plastic welding
Custom automation systems

Specifications

Power (W)		2600
Frequency Range (kHz)		14.75-15.00
Impedance at Resonant Frequency (Ω)		≤20
Capacitance (pF)	Yellow Ceramic	9000-10000
	Gray Ceramic	10000-11000
	Black Ceramic	11500-12800
Booster Material		Steel
Transducer Shape		Columnar



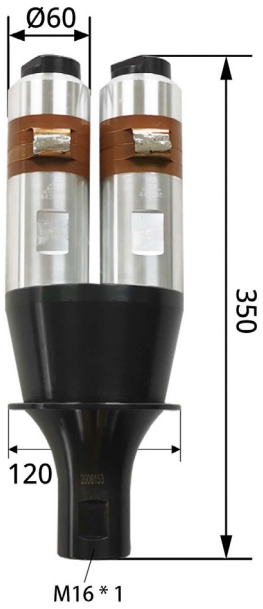
Model Name	B15350A1	B15350A2	B15350A3
Capacitance (pF)	11500-12800	10000-11000	9000-10000
Booster Color	Black	Black	Black



Model Name	B15350A4	B15350A5	B15350A6
Capacitance (pF)	10000-11000	9000-10000	11500-12800
Booster Color	Gray	Gray	Gray

* All specifications are subject to change without notice.

15 kHz Dual-Transducer with Booster Series



Major Applications

Plastic welding
Custom automation systems

Specifications

Power (W)		4200
Frequency Range (kHz)		14.75-15.00
Impedance at Resonant Frequency (Ω)		≤15
Capacitance (pF)	Yellow Ceramic	18000-20000
	Gray Ceramic	20000-22000
	Black Ceramic	25000-27000
Booster Material		Steel
Transducer Shape		Columnar

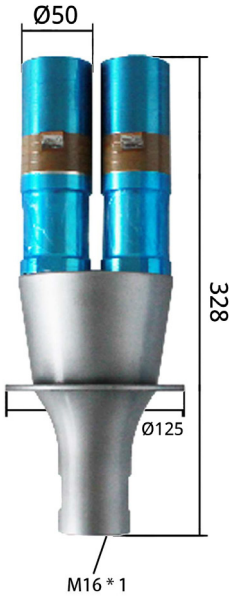


Model Name	B15350AE	B15350AF	B15350AG
Capacitance (pF)	18000-20000	20000-22000	25000-27000
Booster Color	Black	Black	Black

* All specifications are subject to change without notice.

15 kHz Dual-Transducer with Booster

Model Name: B15328A1



Major Applications

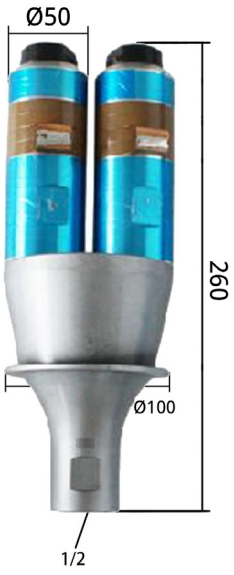
Plastic welding
Custom automation systems

Specifications

Power (W)		3200
Frequency Range (kHz)		14.75-15.00
Impedance at Resonant Frequency (Ω)		≤15
Capacitance (pF)	Black Ceramic	22000-24000
Booster Material		Steel
Transducer Shape		Double-Ended Dumbbell-Shaped

20 kHz Dual-Transducer with Booster

Model Name: B20260A1



Major Applications

Plastic welding
Custom automation systems

Specifications

Power (W)		2600
Frequency Range (kHz)		19.85-19.95
Capacitance (pF)	Black Ceramic	23000-25000
Booster Material		Steel
Transducer Shape		Double-Ended Columnar

* All specifications are subject to change without notice.

20 kHz BLT with Booster Series

Major Applications

Plastic welding
Custom automation systems

Specifications

Power (W)		2000
Frequency Range (kHz)		19.75-20.05
Impedance at Resonant Frequency (Ω)		≤20
Capacitance (pF)	Yellow Ceramic	11000-12000
	Gray Ceramic	13000-14000
	Black Ceramic	14000-16000
Booster Material		Steel
Transducer Shape		Columnar



Model Name	B20255A1	B20255A2	B20255A3
Capacitance (pF)	13000-14000	11000-12000	14500-16000
Booster Color	Black	Black	Black

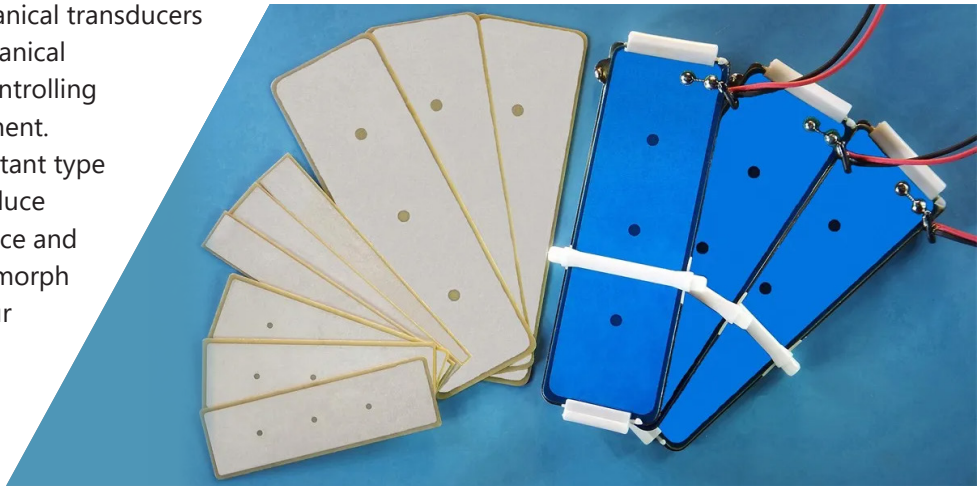


Model Name	B20255A4	B20255A5	B20255A6
Capacitance (pF)	14500-16000	13000-14000	11000-12000
Booster Color	Gray	Gray	Gray

* All specifications are subject to change without notice.

Piezoelectric Bending Actuator

Piezoelectric actuators are electromechanical transducers that convert electrical signals into mechanical displacement and are widely used as controlling or regulating devices in modern equipment. Unictron's bending actuator is an important type of piezoelectric actuator which can produce bending movement with designated force and displacement. Actuators with either unimorph or bimorph design are available per your request.



Characteristics

- High force output, short response time
- Low power consumption, low heat generation
- Excellent durability
- Excellent mechanical properties

Applications

- Actuators for needle selection in knitting machines
- Actuators of Braille displays for the visually impaired
- Controlling mechanism for valves and switches

Dimensions (mm)	Driving Voltage	Force (mN)	Displacement (mm)
64×26.3×0.56	±48V DC	Min. 320 / typical 400	Min. 0.70 / typical 0.80
64×26.3×0.56	±96V DC	Min. 320 / typical 400	Min. 0.70 / typical 0.80
40.5×12×0.63	±200V DC	Min. 400 / typical 500	Min. 0.70 / typical 0.80

Model: PPY4
P/N: H2KPPY40000000

Unimorph Actuator

Characteristics

- Lightweight
- Fast response time
- Low noise
- Stable force output
- vibration modes can be changed with selected electrical signal inputs

Specifications

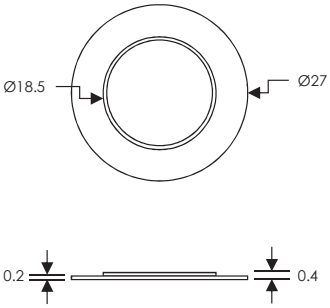
Operation Frequency	50~300	Hz
Capacitance	140 ± 20%	nF
PZT Material	Soft PZT	
PZT Structure	Multilayer	
Driving Voltage	+100V~0V	Vpp
Operating temperature	-40 to +85	°C

※Note1: The design of the mechanism will affect the transmission of the vibration

※Note2: The dimension can be customized

Dimensions

Unit: mm



* All specifications are subject to change without notice.

Piezo Haptic Actuator

Piezoceramic transducers offer haptic feedback in touch displays, presenting advantages like slimness, quick response, and low power consumption. Unictron provides varied piezo elements for tailored haptic applications, available in multiple shapes, sizes, and capacitances. Our advanced facilities ensure high-performance piezoceramic elements production. These actuators are characterized by their lightness, rapid response, low noise, and stability.

Characteristics

- Low profile
- Fast start-up time
- Low audible noise
- Stable vibration signal
- Easy to produce various vibration modes

* Customized sizes, shapes, thickness, and capacitances for haptic applications are available.

Air Transducers

Ultrasonic transducers are effective tools in short-range object detection. By calculating the time difference between emitted and reflected waves (known as time of flight or ToF), these transducers easily determine the distance to detected objects.

In the realm of ultrasonic detection, a wide spectrum of objects becomes detectable. It includes solids, liquids, and powders with various surface characteristics, regardless of color, transparency, and hardness. This versatility makes ultrasonic transducers useful in various applications, such as parking sensors, level sensors, double feed detection, edge position control, flow meters, medical probes, and more.

Unictron Ultrasonic Air Transducers

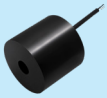
Non-contact Ultrasonic Detection

- Double Feed/ Robot Vacuum Cleaner

- EPC

- Level/Distance Sensor

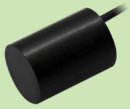
- Dual-frequency Level Detection



Gas Flow Meter

- Gas Flow

- Anemometer



Frequencies: from 40 kHz to 500 kHz

MAIN FEATURES

End-to-End Control

Unictron oversees the entire manufacturing process, from formulating ceramic powders to crafting piezo elements and assembling air transducers. Our meticulous supervision at each production stage allows us to finely tune the mechanical and electrical properties of the transducers.

In-house Expertise

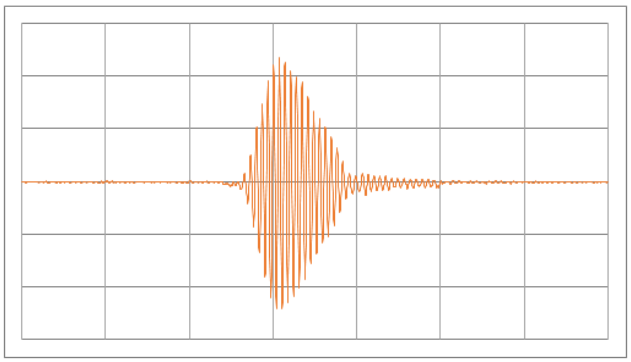
Leveraging our comprehensive background, we've cultivated expertise in:

- In-house production of piezoceramic elements and acoustic matching layers.
- Implementation of patented technologies.
- Achieving higher sensitivity while maintaining a tighter process output distribution.
- Ensuring exceptional reliability.

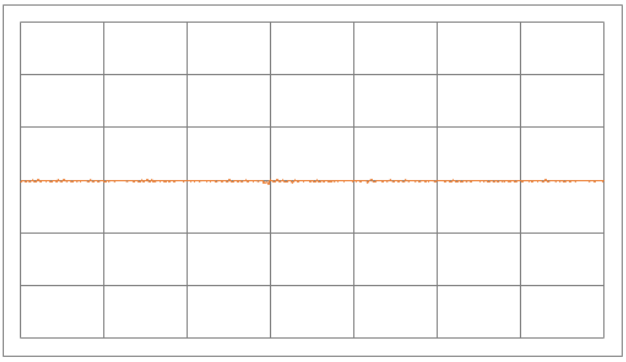
Double Feed Detection

Ultrasound can penetrate much more through a single sheet compared with multiple sheets. It has been widely used in automatic document feeders (ADF).

Signal with a single sheet



Signal with multiple sheets



A300A 300 kHz Air transducer

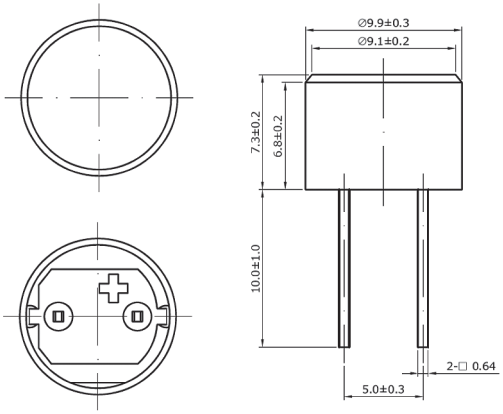
Major Applications

Web guiding
Double feed detection
Proximity measurement

Specifications

Operation Frequency	300	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1300 ± 20%	pF
Directivity (Full Angle @-6 dB)	10 ± 2	degree
Maximum Sensing Range	60	cm
Blind Zone	< 3	cm
Dimension-OD	9.9	mm
Dimension-Height	7.3	mm
Housing Material	PBT	
Wire	Lead	

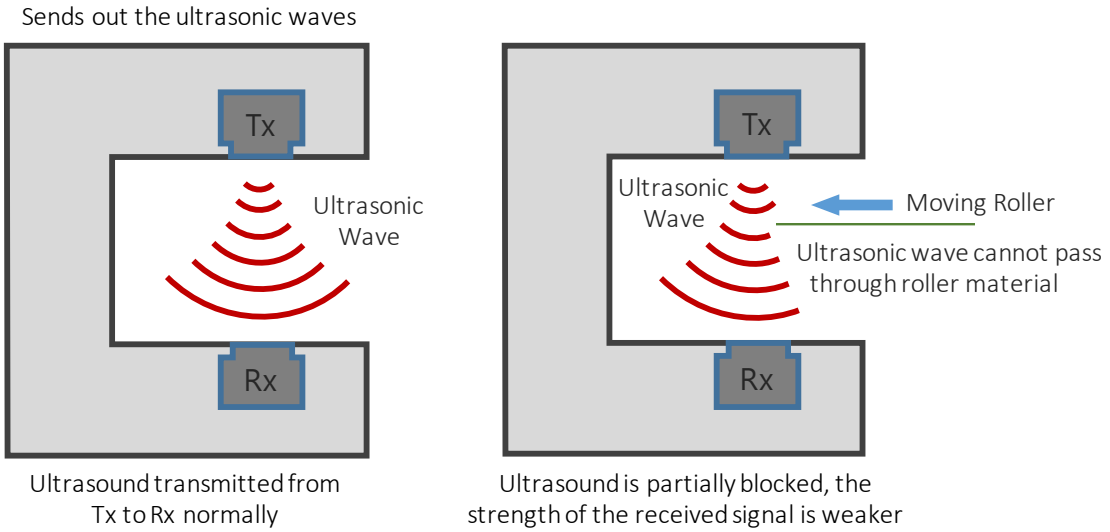
Dimensions Unit: mm



* All specifications are subject to change without notice.

Edge Position Control

The EPC system equipped with ultrasonic transducers is suitable for most materials, including metal or non-metal, transparent or opaque sheet, mesh or film, and any color of object, etc.



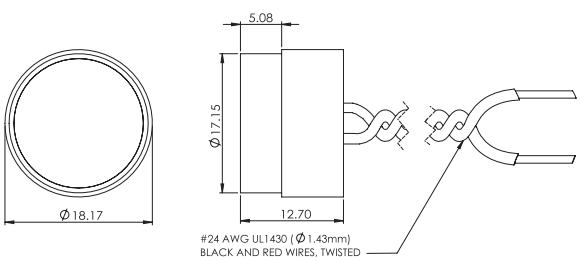
A150A 150 kHz Air transducer

Major Applications

Web guiding
Proximity measurement

Specifications		
Operation Frequency	150	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1000 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Sensing Range	15 - 250	cm
Proportional Band	7 - 9	mm
Dimension-OD	18.17	mm
Dimension-Height	12.70	mm
Housing Material	Aluminum	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm



* All specifications are subject to change without notice.

A170W1 170 kHz Air transducer

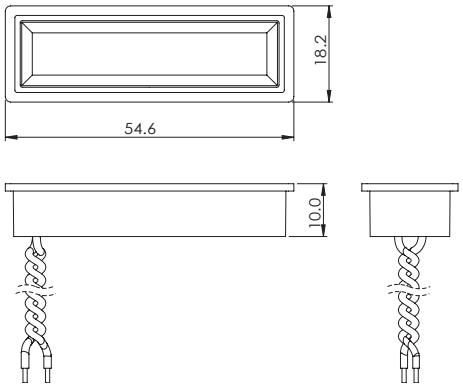
Major Applications

Web guiding
Proximity measurement

Specifications		
Operation Frequency	170	kHz
Capacitance (@ 1 kHz, 1 Vrms)	3000 ± 20%	pF
Directivity (Full Angle @-6 dB)	X 5 ± 2 Y 25 ± 2	degree
Sensing Range	15 - 225	cm
Proportional Band	28	mm
Dimensions (LxWxH)	54.6x18.2x10.0	mm
Housing Material	Plastic	
Operating Temperature	+5°C to +60°C	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions

Unit: mm



A170W2 170 kHz Air transducer

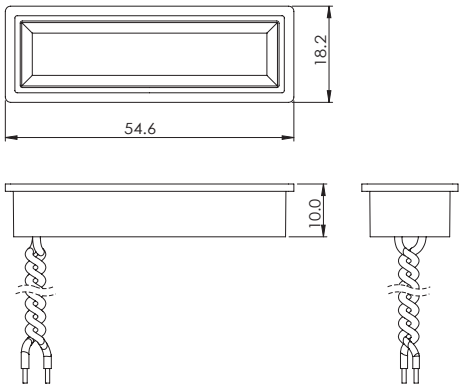
Major Applications

Web guiding
Proximity measurement

Specifications		
Operation Frequency	170	kHz
Capacitance (@ 1 kHz, 1 Vrms)	3000 ± 20%	pF
Directivity (Full Angle @-6 dB)	X 5 ± 2 Y 25 ± 2	degree
Sensing Range	15 - 225	cm
Proportional Band	28	mm
Dimensions (LxWxH)	54.6x18.2x10.0	mm
Housing Material	Plastic	
Operating Temperature	+5°C to +80°C	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions

Unit: mm



* All specifications are subject to change without notice.

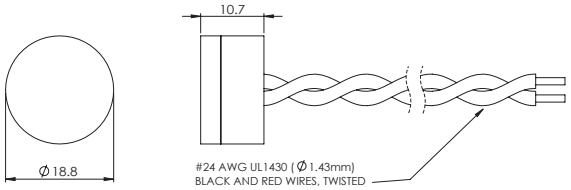
A200H1 200 kHz Air transducer

Major Applications

Web guiding
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Directivity (Full Angle @-6 dB)	10 ± 2	degree
Sensing Range	10 - 200	cm
Proportional Band	8 - 10	mm
Dimension-OD	18.8	mm
Dimension-Height	10.7	mm
Housing Material	Aluminum	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm



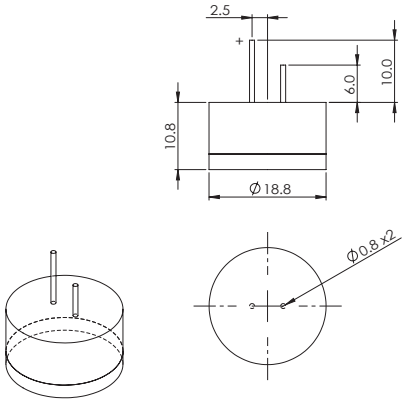
A200H5 200 kHz Air transducer

Major Applications

Web guiding
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Directivity (Full Angle @-6 dB)	10 ± 2	degree
Sensing Range	10 - 200	cm
Proportional Band	8 - 10	mm
Dimension-OD	18.8	mm
Dimension-Height	10.8	mm
Housing Material	Aluminum	
Wire	Lead	

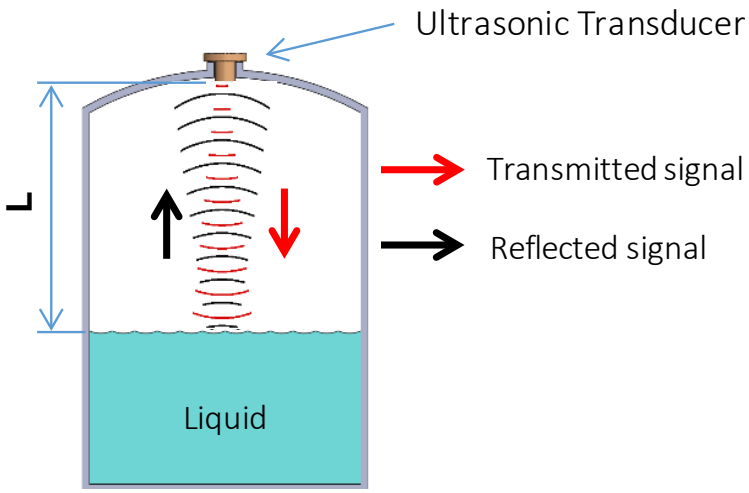
Dimensions Unit: mm



* All specifications are subject to change without notice.

Non-contact Ultrasonic Level Detection

Level depth can be detected with an ultrasonic transducer, acting as a transmitting and a receiving unit within one body, based on ToF calculations.



ToF = t ; Sound Velocity = V

Level depth = L
L = (V*t)/2

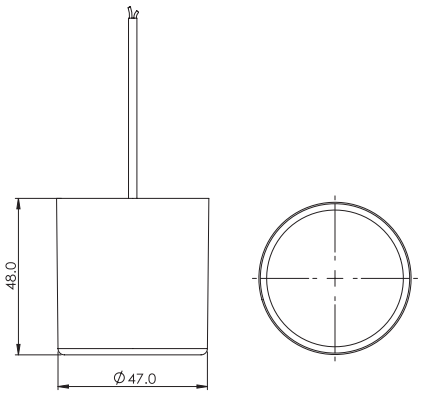
A050A 50 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	50	kHz
Capacitance (@ 1 kHz, 1 Vrms)	3500 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	10	meter
Blind Zone	< 30	cm
Dimension-OD	47.0	mm
Dimension-Height	48.0	mm
Housing Material	PVDF	
Wire	RG174/U 50 Ω Ø2.7mm	

Dimensions Unit: mm



* All specifications are subject to change without notice.

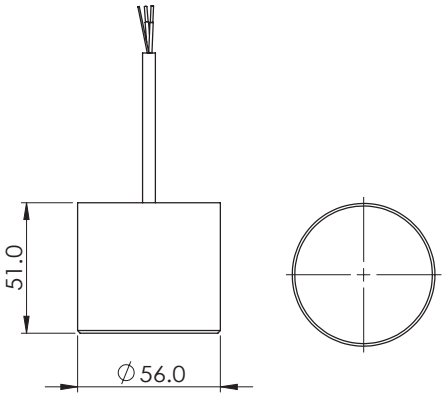
A050B1 50 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	50	kHz
Capacitance (@ 1 kHz, 1 Vrms)	5000 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	12	meter
Blind Zone	< 30	cm
Dimension-OD	56.0	mm
Dimension-Height	51.0	mm
Housing Material	PVDF	
Wire	UL2464 #24AWG Ø4.0mm	

Dimensions Unit: mm



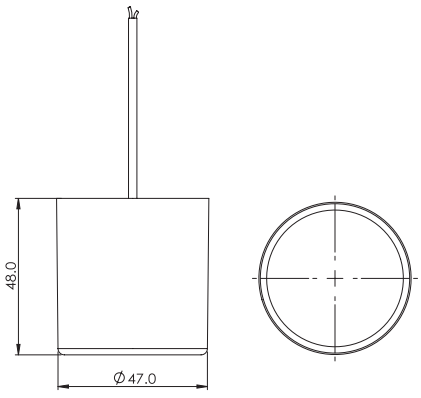
A054L1 54 kHz Air transducer

Major Applications

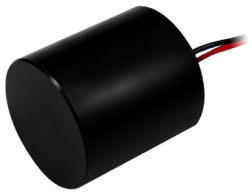
Level detection
Proximity measurement

Specifications		
Operation Frequency	54	kHz
Capacitance (@ 1 kHz, 1 Vrms)	2600 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	10	meter
Blind Zone	< 20	cm
Dimension-OD	47.0	mm
Dimension-Height	48.0	mm
Housing Material	PVDF	
Wire	UL2464 #22AWG Ø4.0mm	

Dimensions Unit: mm



* All specifications are subject to change without notice.



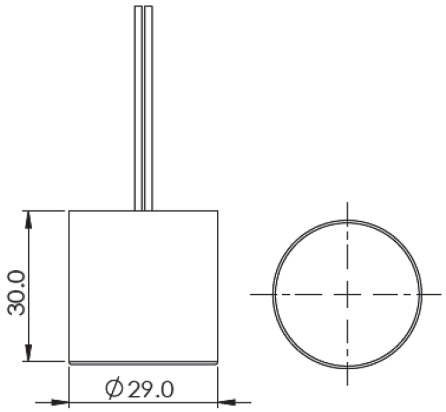
A100A1 100 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	100	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1600 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	4	meter
Blind Zone	< 20	cm
Dimension-OD	29.0	mm
Dimension-Height	30.0	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm



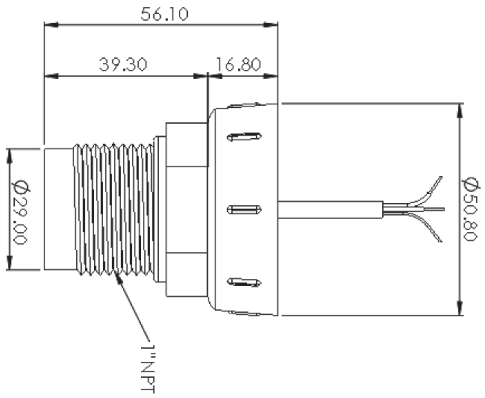
A100C1 100 kHz Air transducer

Major Applications

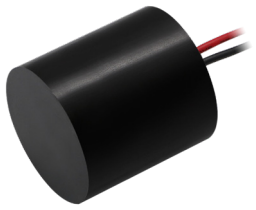
Level detection
Proximity measurement

Specifications		
Operation Frequency	100	kHz
Capacitance (@ 1 kHz, 1 Vrms)	3400 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	4	meter
Blind Zone	< 20	cm
Dimension-OD	29.0	mm
Dimension-Height	56.1	mm
Housing Material	PVDF	
Wire	UL2464 #22AWG Ø4.0mm	

Dimensions Unit: mm



* All specifications are subject to change without notice.



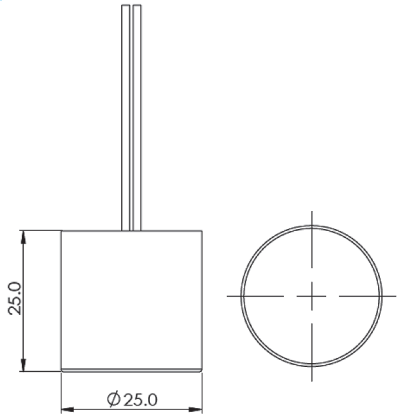
A125A1 125 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	125	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1000 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	3	meter
Blind Zone	< 15	cm
Dimension-OD	25.0	mm
Dimension-Height	25.0	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm



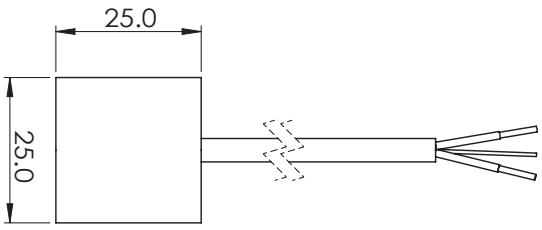
A125A3 125 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	125	kHz
Capacitance (@ 1 kHz, 1 Vrms)	900 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	3	meter
Blind Zone	< 15	cm
Dimension-OD	25.0	mm
Dimension-Height	25.0	mm
Housing Material	PVDF	
Wire	UL2464 #22AWG	

Dimensions Unit: mm



* All specifications are subject to change without notice.

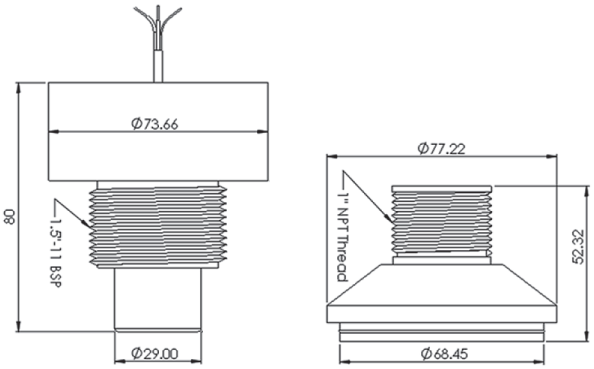
A125E 125 kHz Air transducer

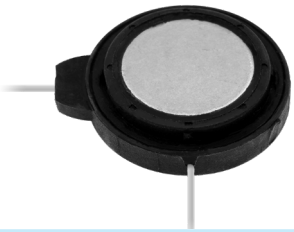
Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	125	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1000 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	3	meter
Blind Zone	< 15	cm
Dimension-OD	29.0	mm
Dimension-Height (transducer + cover)	126.6	mm
Housing Material	PVDF	
Wire	UL2464 #22AWG Ø4.0mm	

Dimensions Unit: mm





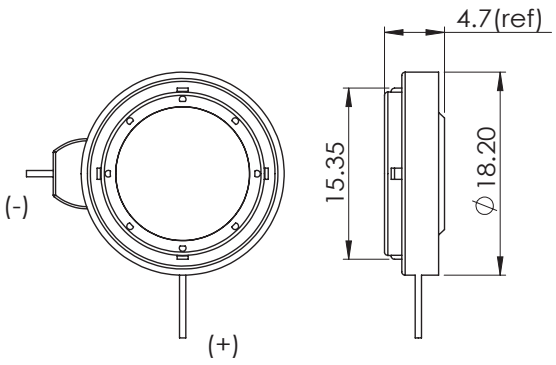
A180M1 180 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	180	kHz
Capacitance (@ 1 kHz, 1Vrms)	400 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	2	meter
Blind Zone	< 10	cm
Dimension-OD	15.35	mm
Dimension-Height	4.7	mm
Housing Material	Elastomer	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm



* All specifications are subject to change without notice.

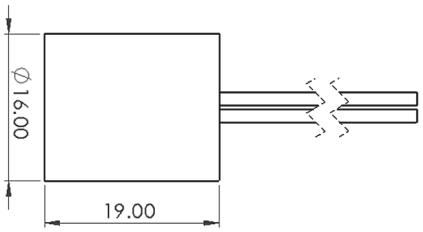
A200A1 200 kHz Air transducer

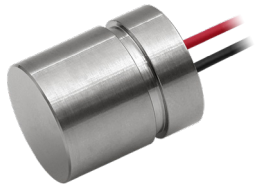
Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1Vrms)	500 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Maximum Sensing Range	2	meter
Blind Zone	< 5	cm
Dimension-OD	16.0	mm
Dimension-Height	19.0	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm





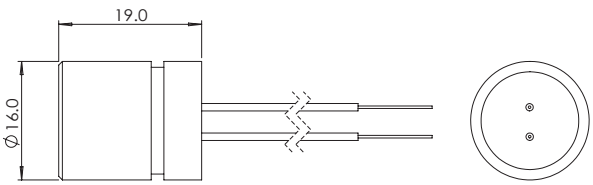
A200ML 200 kHz Air transducer

Major Applications

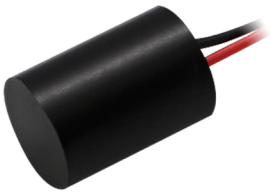
Air spring level measurement
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1Vrms)	500 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Max. Operation Pressure	17	bar
Sensing Range	5 - 150	cm
Dimension-OD	16.0	mm
Dimension-Height	19.0	mm
Housing Material	Titanium alloy	
Wire	UL10368 #28AWG	

Dimensions Unit: mm



* All specifications are subject to change without notice.



A240A1 240 kHz Air transducer

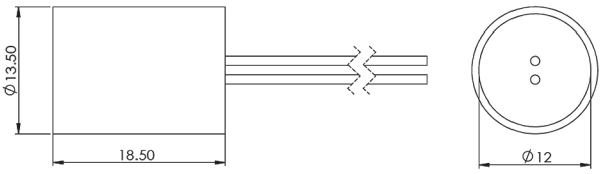
Major Applications

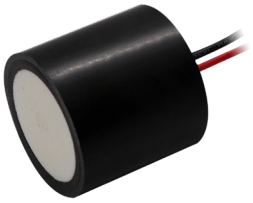
Level detection
Proximity measurement

Specifications		
Operation Frequency	240	kHz
Capacitance (@ 1 kHz, 1Vrms)	400 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Maximum Sensing Range	1.2	meter
Blind Zone	< 4	cm
Dimension-OD	13.5	mm
Dimension-Height	18.5	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions

Unit: mm





A100F1 100 kHz Air transducer

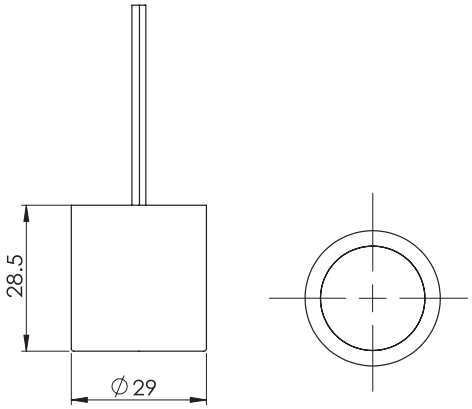
Major Applications

Level detection
Proximity measurement

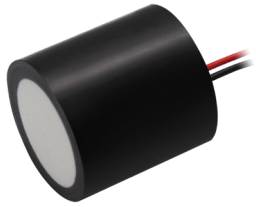
Specifications		
Operation Frequency	100	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1600 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	4	meter
Blind Zone	< 20	cm
Dimension-OD	29.0	mm
Dimension-Height	28.5	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions

Unit: mm



* All specifications are subject to change without notice.



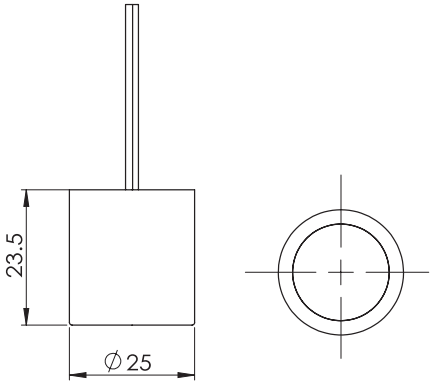
A125F1 125 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	125	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1000 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Maximum Sensing Range	3	meter
Blind Zone	< 15	cm
Dimension-OD	25.0	mm
Dimension-Height	23.5	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions Unit: mm



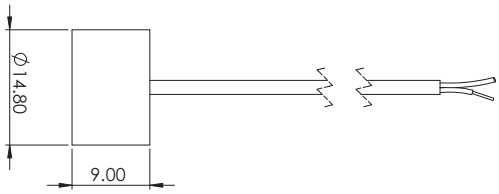
A180F1 180 kHz Air transducer

Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	180	kHz
Capacitance (@ 1 kHz, 1 Vrms)	725 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Maximum Sensing Range	2.5	meter
Blind Zone	< 8	cm
Dimension-OD	14.8	mm
Dimension-Height	9.0	mm
Housing Material	Engineering plastic	
Wire	UL1533 #28AWG	

Dimensions Unit: mm



* All specifications are subject to change without notice.

A200F1 200 kHz Air transducer

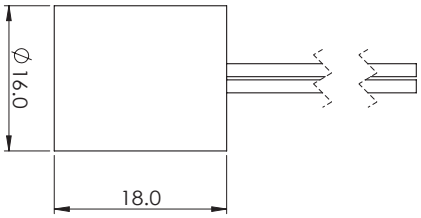
Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Maximum Sensing Range	2	meter
Blind Zone	< 5	cm
Dimension-OD	16.0	mm
Dimension-Height	18.0	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions

Unit: mm



A240F1 240 kHz Air transducer

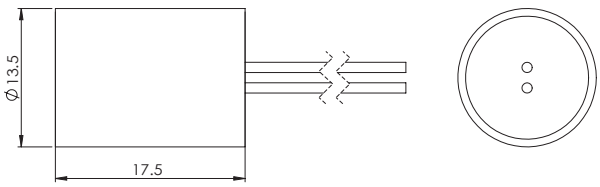
Major Applications

Level detection
Proximity measurement

Specifications		
Operation Frequency	240	kHz
Capacitance (@ 1 kHz, 1 Vrms)	400 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Maximum Sensing Range	1.2	meter
Blind Zone	< 4	cm
Dimension-OD	13.5	mm
Dimension-Height	17.5	mm
Housing Material	PVDF	
Wire	UL1430 #24AWG Ø1.43mm	

Dimensions

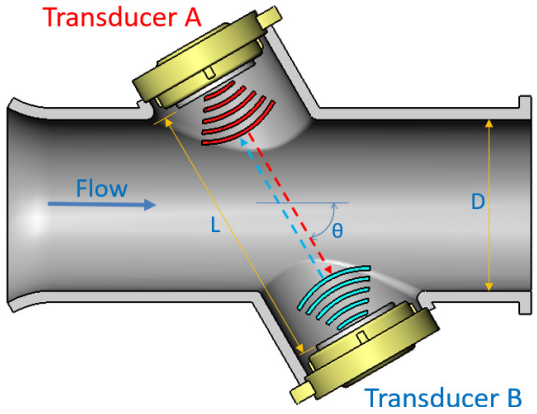
Unit: mm



* All specifications are subject to change without notice.

Ultrasonic Gas Flow Meter

Gas flow rate can be detected using a pair of ultrasonic transducers, based on ToF difference between upstream and downstream directions.



$$V = L/2\cos\theta\ [\ 1/T_{AB} - 1/T_{BA}\ ]$$

V = Gas flow rate
T_{AB}: downstream ToF
T_{BA}: upstream ToF

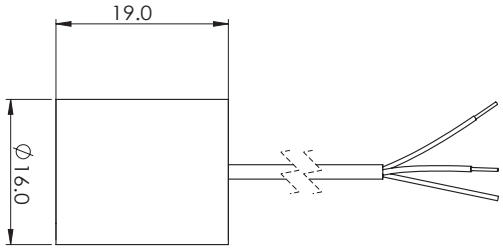
A200D1 200 kHz Air transducer

Major Applications

Gas flow meter
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Max. Operation Pressure	1.0	MPa
Dimension-OD	16.0	mm
Dimension-Height	19.0	mm
ZFD (Zero Flow Drift)	< 1.0	ns
Housing Material	PVDF	
Operating Temperature	-30°C to +70°C	
Storage Temperature	-40°C to +85°C	

Dimensions Unit: mm



* All specifications are subject to change without notice.

A200M3 200 kHz Air transducer

Major Applications

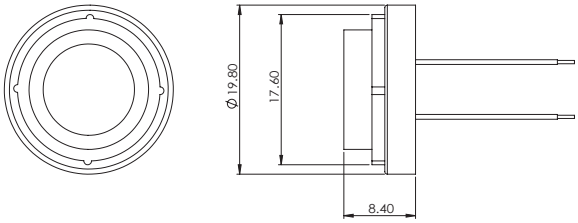
Gas flow meter
Proximity measurement

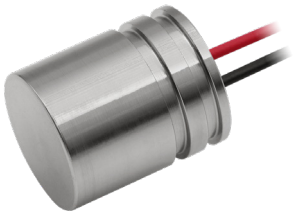
Specifications

Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	2000 ± 20%	pF
Max. Operation Pressure	100	kPa
Dimension-OD	17.6	mm
Dimension-Height	8.4	mm
ZFD (Zero Flow Drift)	< 1.0	ns
Housing Material	Elastomer	
Operating Temperature	-25°C to +55°C	
Storage Temperature	-40°C to +85°C	

Dimensions

Unit: mm





A200M7 200 kHz Air transducer

Major Applications

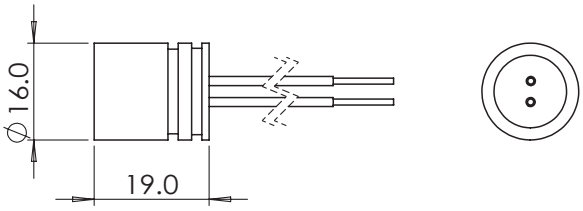
Gas flow meter
Proximity measurement

Specifications

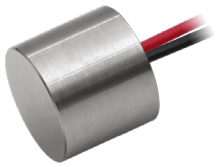
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Max. Operation Pressure	1.6	MPa
Dimension-OD	16.0	mm
Dimension-Height	19.0	mm
ZFD (Zero Flow Drift)	< 5.0	ns
Housing Material	Titanium alloy	
Operating Temperature	-30°C to +70°C	
Storage Temperature	-40°C to +85°C	

Dimensions

Unit: mm



* All specifications are subject to change without notice.



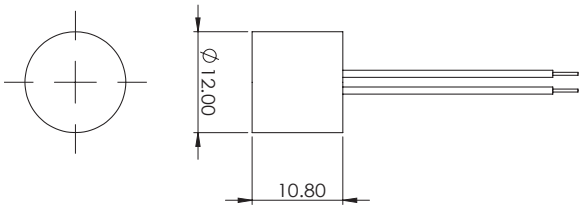
A200M8 200 kHz Air transducer

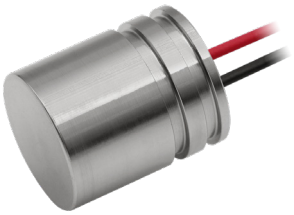
Major Applications

Gas flow meter
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Max. Operation Pressure	6.3	MPa
Dimension-OD	12.0	mm
Dimension-Height	10.8	mm
ZFD (Zero Flow Drift)	< 5.0	ns
Housing Material	Titanium alloy	
Operating Temperature	-30°C to +70°C	
Storage Temperature	-40°C to +85°C	

Dimensions Unit: mm





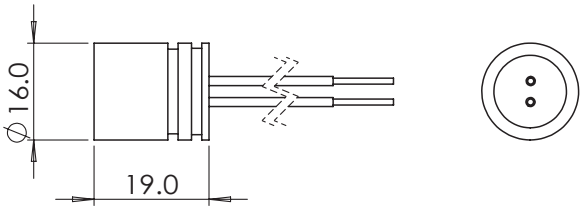
A200M9 200 kHz Air transducer

Major Applications

Gas flow meter
Proximity measurement

Specifications		
Operation Frequency	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	500 ± 20%	pF
Max. Operation Pressure	6.3	MPa
Dimension-OD	16.0	mm
Dimension-Height	19.0	mm
ZFD (Zero Flow Drift)	< 5.0	ns
Housing Material	Titanium alloy	
Operating Temperature	-30°C to +70°C	
Storage Temperature	-40°C to +85°C	

Dimensions Unit: mm



* All specifications are subject to change without notice.

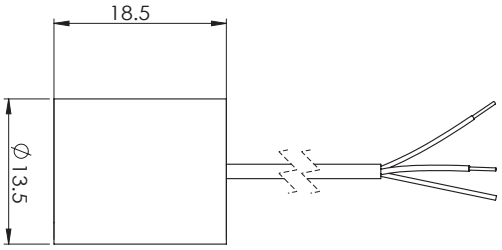
A240C3 240 kHz Air transducer

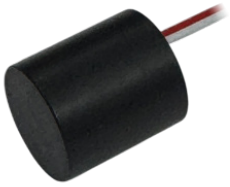
Major Applications

Anemometer
Gas flow meter

Specifications		
Operation Frequency	240	kHz
Capacitance (@ 1 kHz, 1 Vrms)	400 ± 20%	pF
Directivity (Full Angle @-3 dB)	8 ± 2	degree
Dimension-OD	13.5	mm
Dimension-Height	18.5	mm
Housing Material	Engineering plastic	
Operating Temperature	-40°C to +70°C	
Storage Temperature	-40°C to +85°C	

Dimensions Unit: mm





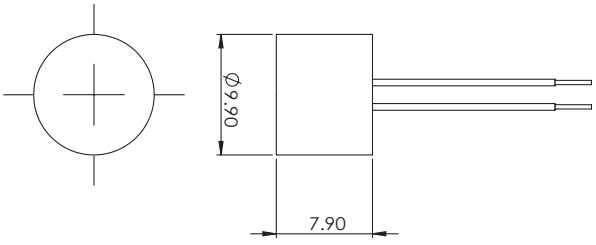
A330L1 330 kHz Air transducer

Major Applications

Anemometer
Proximity measurement

Specifications		
Operation Frequency	330	kHz
Capacitance (@ 1 kHz, 1 Vrms)	300 ± 20%	pF
Directivity (Full Angle @-3 dB)	10 ± 2	degree
Dimension-OD	9.9	mm
Dimension-Height	7.9	mm
Housing Material	Engineering plastic	
Operating Temperature	-40°C to +85°C	
Storage Temperature	-40°C to +85°C	

Dimensions Unit: mm



* All specifications are subject to change without notice.

A500B1 500 kHz Air transducer

Major Applications

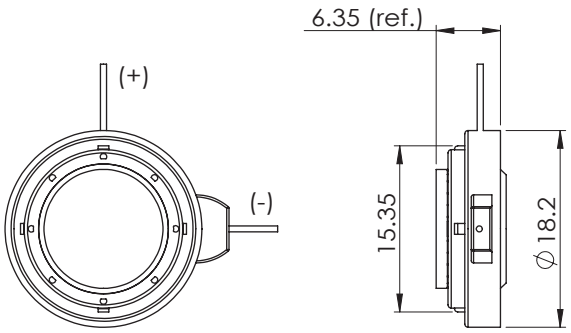
Gas flow meter
Proximity measurement

Specifications

Operation Frequency	500	kHz
Capacitance (@ 1 kHz, 1 Vrms)	320 ± 20%	pF
Directivity (Full Angle @-3 dB)	7 ± 2	degree
Dimension-OD	15.35	mm
Dimension-Height	6.35 (ref.)	mm
ZFD (Zero Flow Drift)	< 1.0	ns
Housing Material	Elastomer	
Operating Temperature	-25°C to +55°C	
Storage Temperature	-40°C to +85°C	

Dimensions

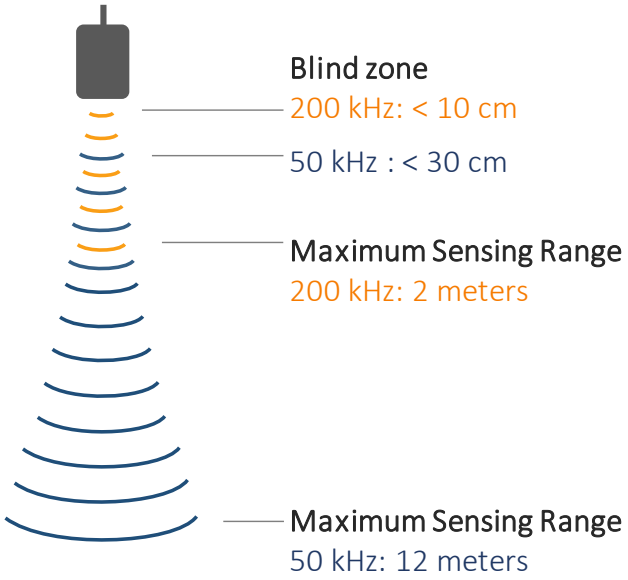
Unit: mm



* All specifications are subject to change without notice.

Dual-frequency Non-contact Ultrasonic Level Detection

Unictron has successfully developed a novel type of dual-frequency non-contact ultrasonic air transducer with innovative technologies. This provides the advantage of maximizing detection distance and minimizing the blind zone in one transducer, making the application of the transducer more flexible.



Y050A1 50/200 kHz Air transducer

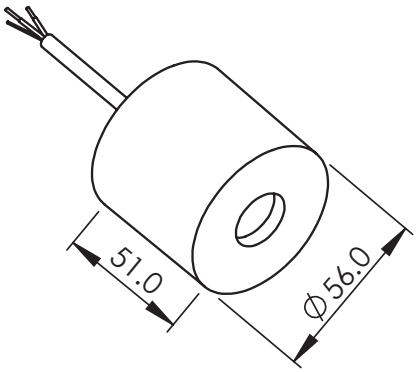
Major Applications

Level detection
Proximity measurement

Specifications

	50 kHz	200 kHz	
Operation Frequency	50	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1500 ± 20%		pF
Directivity (Full Angle @-3 dB)	10 ± 2	6 ± 2	degree
Maximum Sensing Range	12	2	meter
Blind Zone	< 30	< 10	cm
Housing Material	PVDF		

Dimensions Unit: mm



* All specifications are subject to change without notice.

Y050T3 50/200 kHz Air transducer

Major Applications

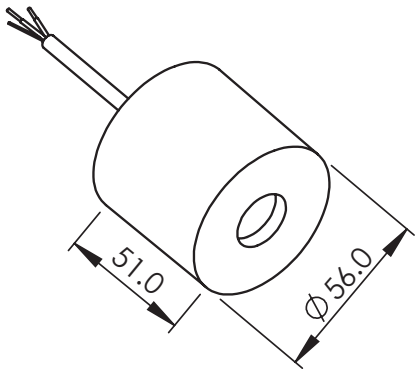
Level detection
Proximity measurement

Specifications

	50 kHz	200 kHz	
Operation Frequency	50	200	kHz
Capacitance (@ 1 kHz, 1 Vrms)	1500 ± 20%		pF
Directivity (Full Angle @-3 dB)	10 ± 2	6 ± 2	degree
Maximum Sensing Range	12	2	meter
Blind Zone	< 30	< 10	cm
Housing Material	PVDF		

Dimensions

Unit: mm



* All specifications are subject to change without notice.

Level Detection Through Liquid

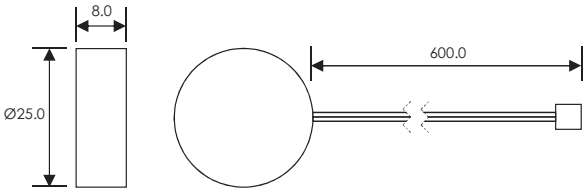
LPY1 1 MHz Level sensor transducer

Major Applications

Level detection

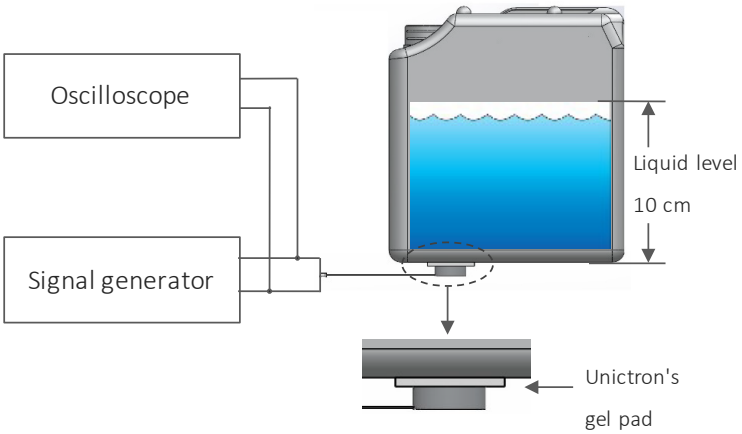
Specifications		
Operation Frequency	1	MHz
Echo Voltage	> 50	mV
Capacitance (@ 1 kHz)	1250 ± 20%	pF
Maximum Driving Voltage	50	Vpp
Operating Temperature	-30°C to +80°C	
Storage Temperature	-30°C to +80°C	
Dimension-Height	8	mm
Housing Material	Aluminum	
Wire	UL10368 #30AWG Ø0.8mm	

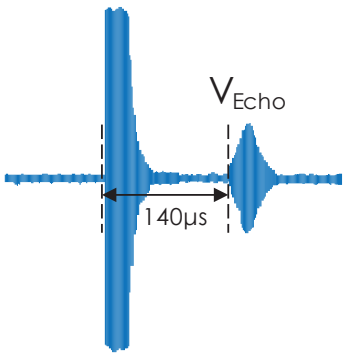
Dimensions Unit: mm



Sensitivity Measurement Diagram

Sensitivity measurement
Liquid level: 10 cm (olive oil) / container: HDPE





Drive Signal (VDriving): 1 MHz 3.3v 20 pulses,
Drive interval: 10 ms
Echo Signal (VEcho) : For 10 cm olive oil level,
echo signal appears at around 140 μs

* All specifications are subject to change without notice.

Smart Level Sensors (Contains Drive Circuit)

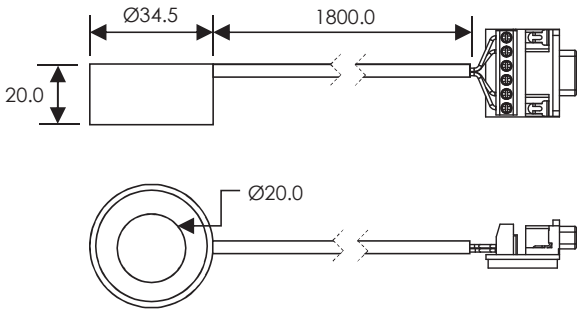
LPY4 1 MHz Level sensor transducer

Major Applications

Fuel level sensor
Liquid level detector

Specifications		
Operation Frequency	1	MHz
Dimensions	Ø34.5*20.0	mm
Measuring height of liquid level	50 - 2000	mm
Working voltage	4.5 - 5.5	VDC
Blind zone	≤ 50	mm
Output mode	Digital output	
Operating temperature	-15°C to +60°C	
Storage temperature	-15°C to +60°C	

Dimensions Unit: mm



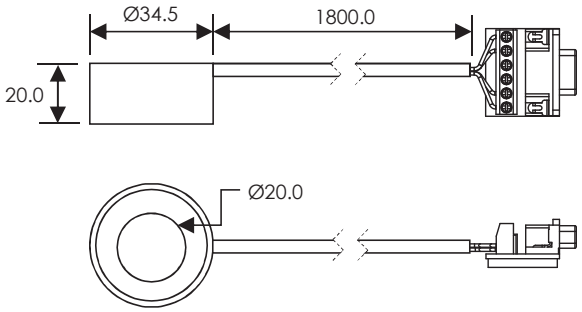
LPY5 2 MHz Level sensor transducer

Major Applications

Fuel level sensor
Liquid level detector

Specifications		
Operation Frequency	2	MHz
Dimensions	Ø34.5*20.0	mm
Measuring height of liquid level	50 - 2000	mm
Working voltage	4.5 - 5.5	VDC
Blind zone	≤ 50	mm
Output mode	Digital output	
Operating temperature	-15°C to +60°C	
Storage temperature	-15°C to +60°C	

Dimensions Unit: mm



* All specifications are subject to change without notice.

Proximity Sensor

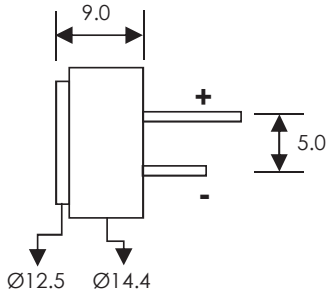
BPY4 40 kHz Ultrasonic transducer

Major Applications

Object and distance detection
Waste and fill level detection

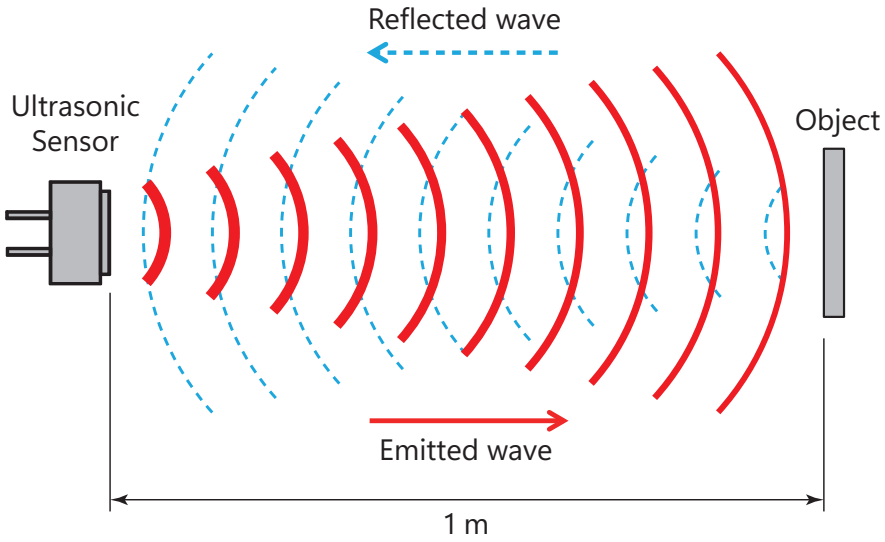
Specifications		
Operation Frequency	40	kHz
Echo Voltage*	> 175	mV
Capacitance (@ 1 kHz)	1800 ± 20%	pF
Resonant Impedance	< 2000	Ohm
Operating Temperature	-40°C to +80°C	
Storage Temperature	-40°C to +80°C	
Dimension-Height	9.0	mm
Housing Material	Aluminum	
Wire	Lead	

Dimensions Unit: mm



*** burst: 20 cycles, gain: 330 @distance: 100cm**

Ultrasonic Time-of-Flight Measurement



* All specifications are subject to change without notice.

Flow Meter for Liquid

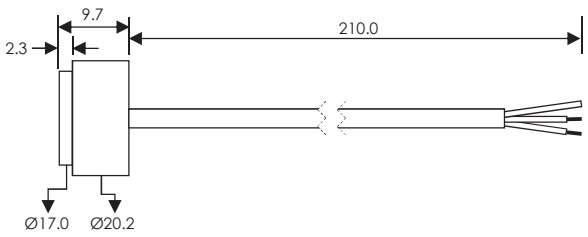
MPYA 1 MHz Flow meter transducer

Major Applications

Liquid flow meter

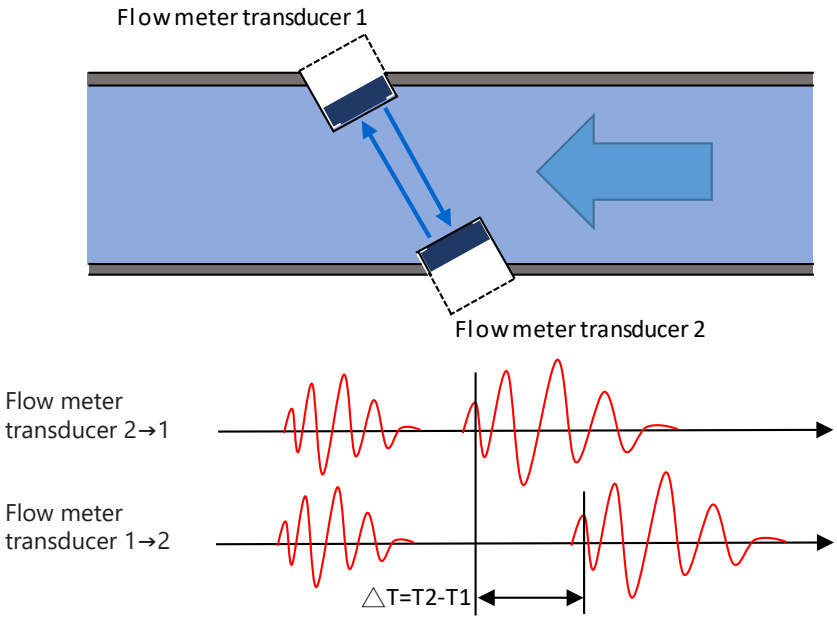
Specifications		
Operation Frequency	1	MHz
Capacitance (@ 1 kHz)	1200 ± 20%	pF
Sensitivity dB*	-28 min	dB
Beam Angle (-3dB full angle)	5	degree
Operation Voltage	50 max	Vpp
Operation Temperature	+4°C to +80°C	
Storage Temperature	-10°C to +80°C	
Housing Material	PPS	
Wire	UL2547 #28AWG Ø2.8mm	

Dimensions Unit: mm



* Applied voltage Vpp = 3.3V, sine wave, 20 cycles burst, Water level 10 cm; Water temperature 25°C

Ultrasonic Time-of-Flight Diagram



* All specifications are subject to change without notice.

Clamping Liquid Flow Meter Transducer

MPYE 2 MHz Flow meter transducer

Major Applications

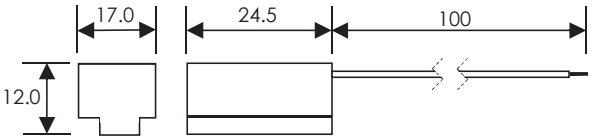
Industrial liquid flow meter
Household water flow meter
Liquid leakage detection

Specifications

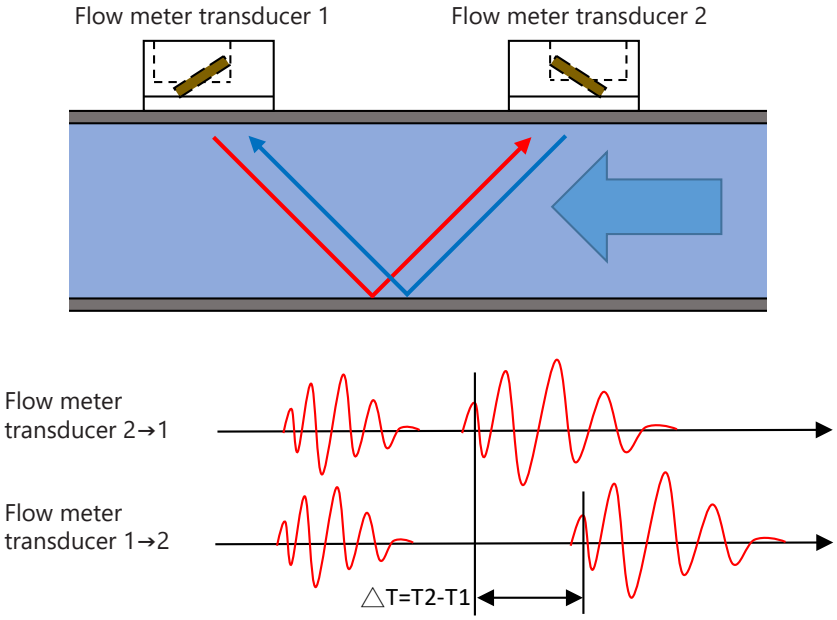
Operation Frequency	2	MHz
Capacitance (@ 1 kHz)	1600 ± 20%	pF
Sensitivity dB*	-38 min	dB
Operation Voltage	50 max	Vpp
Operation Temperature	-10°C to +80°C	
Storage Temperature	-10°C to +80°C	

* Applied voltage Vpp=10V,square wave, 10 cycles burst, DN25 PVC , Water temperature 25°C

Dimensions Unit: mm



Ultrasonic Time-of-Flight Diagram



* All specifications are subject to change without notice.

Product Family

Edge Position Control / Double Feed Detection

Model Name	A150A	A170W1	A170W2	A200H1	A200H5	A300A
						
Frequency (kHz)	150	170	170	200	200	300
Dimensions (mm)	OD 18.17 H 12.70	L 54.6 W 18.2 H 10.0	L 54.6 W 18.2 H 10.0	OD 18.8 H 10.7	OD 18.8 H 10.8	OD 9.9 H 7.3
Directivity (full angle @-6 dB)	8 ± 2° (@-3 dB)	X 5 ± 2° Y 25 ± 2°	X 5 ± 2° Y 25 ± 2°	10 ± 2°	10 ± 2°	10 ± 2°
Sensing Range (cm)	15 - 250	15 - 225	15 - 225	10 - 200	10 - 200	3 - 60
Proportional Band (mm)	7 - 9	28	28	8 - 10	8 - 10	Array
Housing Material	Aluminum	Plastic	Plastic	Aluminum	Aluminum	Plastic
Major Applications	Web guiding Proximity	Web guiding Proximity	Web guiding Proximity	Web guiding Proximity	Web guiding Proximity	Web guiding Proximity Double feed

Non-contact Ultrasonic Level Detection

Model Name	A050A	A050B1	A054L1	A100A1	A100C1	A125A1
						
Frequency (kHz)	50	50	54	100	100	125
Dimensions (mm)	OD 47.0 H 48.0	OD 56.0 H 51.0	OD 47.0 H 48.0	OD 29.0 H 30.0	OD 29.0 H 56.1	OD 25.0 H 25.0
Directivity (full angle @-3 dB)	10 ± 2°	10 ± 2°	10 ± 2°	10 ± 2°	10 ± 2°	10 ± 2°
Max. Sensing Range (meter)	10	12	10	4	4	3
Blind Zone (cm)	< 30	< 30	< 20	< 20	< 20	< 15
Housing Material	PVDF	PVDF	PVDF	PVDF	PVDF	PVDF
Major Applications	Level detection	Level detection	Level detection	Level detection	Level detection	Level detection

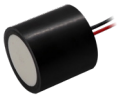
* All specifications are subject to change without notice.

Product Family

Non-contact Ultrasonic Level Detection

Model Name	A125A3	A125E	A180M1	A200A1	A200ML	A240A1
						
Frequency (kHz)	125	125	180	200	200	240
Dimensions (mm)	OD 25.0 H 25.0	OD 29.0 H 126.6	OD 15.35 H 4.7	OD 16.0 H 19.0	OD 16.0 H 19.0	OD 13.5 H 18.5
Directivity (full angle @-3 dB)	10 ± 2°	10 ± 2°	10 ± 2°	8 ± 2°	10 ± 2°	8 ± 2°
Max. Sensing Range (meter)	3	3	2	2	1.5	1.2
Blind Zone (cm)	< 15	< 15	< 10	< 5	< 5	< 4
Housing Material	PVDF	PVDF	Elastomer	PVDF	Titanium alloy	PVDF
Major Applications	Level detection	Level detection	Level detection	Level detection	Level detection	Level detection

Non-contact Ultrasonic Level Detection

Model Name	A100F1	A125F1	A180F1	A200F1	A240F1
					
Frequency (kHz)	100	125	180	200	240
Dimensions (mm)	OD 29.0 H 28.5	OD 25.0 H 23.5	OD 14.8 H 9.0	OD 16.0 H 18.0	OD 13.5 H 17.5
Directivity (full angle @-3 dB)	10 ± 2°	10 ± 2°	8 ± 2°	8 ± 2°	8 ± 2°
Max. Sensing Range (meter)	4	3	2.5	2	1.2
Blind Zone (cm)	< 20	< 15	< 8	< 5	< 4
Housing Material	PVDF	PVDF	Engineering plastic	PVDF	PVDF
Major Applications	Level detection	Level detection	Level detection	Level detection	Level detection

* All specifications are subject to change without notice.

Product Family

Ultrasonic Gas Flow Meter / Anemometer

Model Name	A200D1	A200M3	A200M7	A200M8	A200M9
					
Frequency (kHz)	200	200	200	200	200
Dimensions (mm)	OD 16.0 H 19.0	OD 17.6 H 8.40	OD 16.0 H 19.0	OD 12.0 H 10.8	OD 16.0 H 19.0
Max. Operation Pressure	1.0 MPa	100 kPa	1.6 MPa	6.3 MPa	6.3 MPa
Operating Temperature (°C)	-30 to +70	-25 to +55	-30 to +70	-30 to +70	-30 to +70
Housing Material	PVDF	Elastomer	Titanium alloy	Titanium alloy	Titanium alloy
ZFD (Zero Flow Drift)	< 1.0 ns	< 1.0 ns	< 5.0 ns	< 5.0 ns	< 5.0 ns
Major Applications	Gas flow meter	Gas flow meter	Gas flow meter	Gas flow meter	Gas flow meter

Ultrasonic Gas Flow Meter / Anemometer

Model Name	A240C3	A330L1	A500B1
			
Frequency (kHz)	240	330	500
Dimensions (mm)	OD 13.5 H 18.5	OD 9.9 H 7.9	OD 15.35 H 6.35
Max. Operation Pressure	-	-	100 kPa
Operating Temperature (°C)	-40 to +70	-40 to +85	-25 to +55
Housing Material	Engineering plastic	Engineering plastic	Elastomer
ZFD (Zero Flow Drift)	-	-	< 1.0 ns
Major Applications	Anemometer	Anemometer	Gas flow meter

* All specifications are subject to change without notice.

Product Family

Dual-frequency Non-contact Ultrasonic Level Detection

Model Name	Y050A1	Y050T3
		
Frequency (kHz)	50/200	50/200
Dimensions (mm)	OD 56.0 H 51.0	OD 56.0 H 51.0
Directivity (full angle @-3 dB)	10° (@50 kHz) 6° (@200 kHz)	10° (@50 kHz) 6° (@200 kHz)
Max. Sensing Range (meter)	12	12
Blind Zone (cm)	10	10
Housing Material	PVDF	PVDF
Major Applications	Level detection	Level detection

Smart Level Sensors (Contains Drive Circuit)

Model Name	LPY4	LPY5
		
Frequency (MHz)	1	2
Capacitance (@ 1 kHz) (pF)	1370	2500
Measuring height of liquid level (mm)	50 - 2000	50 - 2000
Working voltage (VDC)	4.5 - 5.5	4.5 - 5.5
Output mode	Digital output	Digital output
Dimensions (mm)	OD 34.5 H 20.0	OD 34.5 H 20.0
Operating Temperature (°C)	-15 to +60	-15 to +60
Storage Temperature (°C)	-15 to +60	-15 to +60

* All specifications are subject to change without notice.

Product Family

Level Detection through Liquid

Model Name	LPY1
	
Frequency (MHz)	1
Capacitance (@ 1 kHz) (pF)	1250
Echo Voltage (mV)	> 50
Maximum Driving Voltage (Vpp)	50
Dimensions (mm)	OD 25.0 H 8.0
Operating Temperature (°C)	-30 to +80
Storage Temperature (°C)	-30 to +80
Housing Material	Aluminum

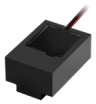
Proximity Level Detection through Air

Model Name	BPY4
	
Frequency (kHz)	40
Capacitance (@ 1 kHz) (pF)	1800
Echo Voltage (mV)	> 175
Resonant Impedance (ohm)	< 2000
Dimensions (mm)	OD 14.4 H 9.0
Operating Temperature (°C)	-40 to +80
Storage Temperature (°C)	-40 to +80
Housing Material	Aluminum

Flow Meter for Liquids

Model Name	MPYA
	
Frequency (MHz)	1
Capacitance (@ 1 kHz) (pF)	1200
Sensitivity (dB)	-28 min.
Beam Angle (full angle @-3 dB)	5°
Operation Voltage (Vpp)	50 max.
Operating Temperature (°C)	+4 to +80
Storage Temperature (°C)	-10 to +80
Housing Material	PPS

Clamping Liquid Flow Meter Transducer

Model Name	MPYE
	
Frequency (MHz)	2
Capacitance (@ 1 kHz) (pF)	1600
Sensitivity (dB)	-38 min.
Operation Voltage (Vpp)	50 max.
Operating Temperature (°C)	-10 to +80
Storage Temperature (°C)	-10 to +80
Housing Material	PEI

* All specifications are subject to change without notice.

Note

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