

A050A Air transducer

Part Number: H2KA050KA1CD00

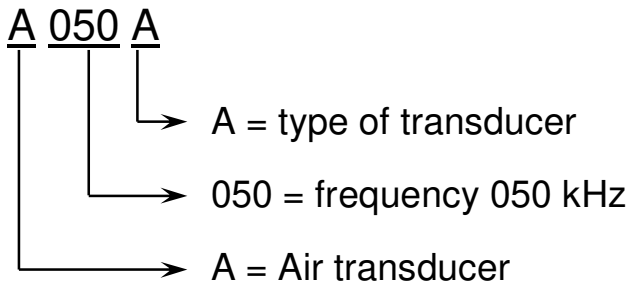


1. Introduction

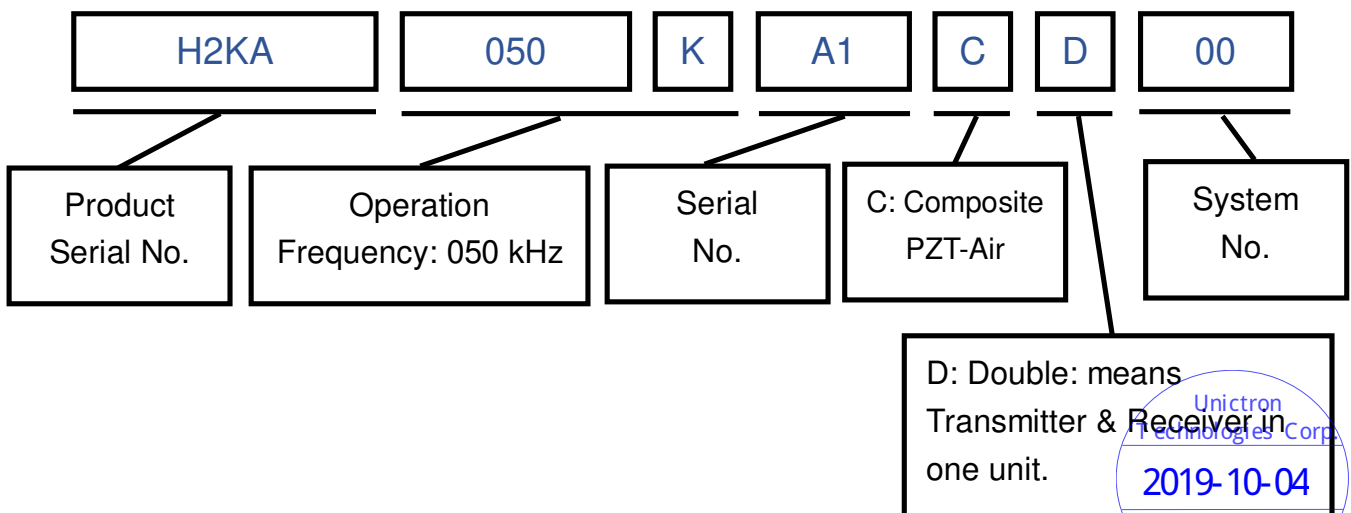
Unictron's A050A ultrasonic transducer is designed to deliver outstanding performance at around 50 kHz frequency. The transducer works as a signal transmitting and receiving unit. This ultrasonic transducer is suitable for non-contact level detection and proximity measurement. In particular, the transducer with the PVDF housing can operate under harsh chemical environment to measure the level of fluids, pastes, and coarse bulk materials.



1.1 Model name

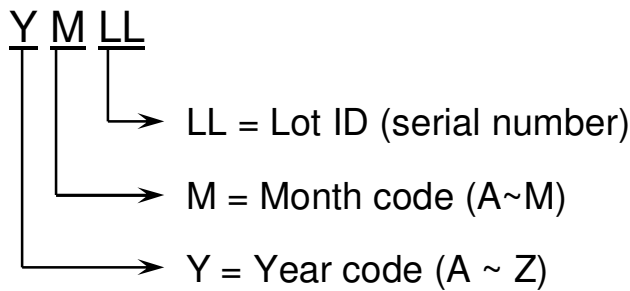


1.2 Part number: H2KA050KA1CD00



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ± X.X = ± X.XX = ± ANGLES = ± HOLE DIA = ±		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com	Document Center 2019-10-04
SCALE : free	UNIT : mm		
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.	
DESIGNED BY : Evan Su	APPROVED BY : Jeff Chang		
TITLE : A050A Air transducer		DOCUMENT NO.	H2KA050KA1CD00
		REV.	A

1.3 Marking



Year	Y code	Month	M code
2017	S	Jan	A
2018	T	Feb	B
2019	U	March	C
2020	V	April	D
2021	W	May	E
2022	X	June	F
2023	Y	July	G
2024	Z	August	H
2025	A	Sep	J
2026	B	Oct	K
2027	C	Nov	L
2028	D	Dec	M

(I · O not involve the code)

2. Electrical Characteristics

2.1 Major electrical characteristics and testing conditions

Characteristics	Specifications	Unit
Operation frequency	50	kHz
Overall sensitivity *	min. 4.0	V _{p-p}
Capacitance (@ 1kHz, 1Vrms)	3500 ± 20%	pF
Directivity (full angle @-3 dB)	10 ± 2	Degree
Maximum driving voltage	1000	V _{p-p}
Typical sensing range	0.3 ~ 10	meter


* Note: 1. Measured at 25±3°C, 45 to 60% RH.

2. Testing circuit setup: Driving signal: rectangular wave 18Vp-p, 50 kHz, burst number = 10 pulses, drive interval: 20 ms, gain of receiving circuit: 64 dB (Please refer to 2.2 for details)

3. Dimensions of reflecting metal plate: 400x400mm, reflection distance: 600mm

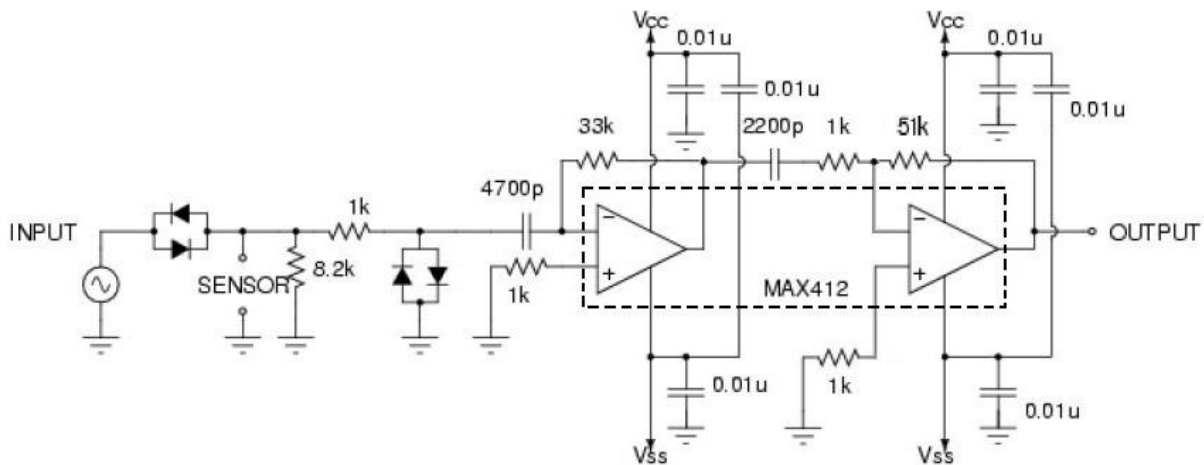
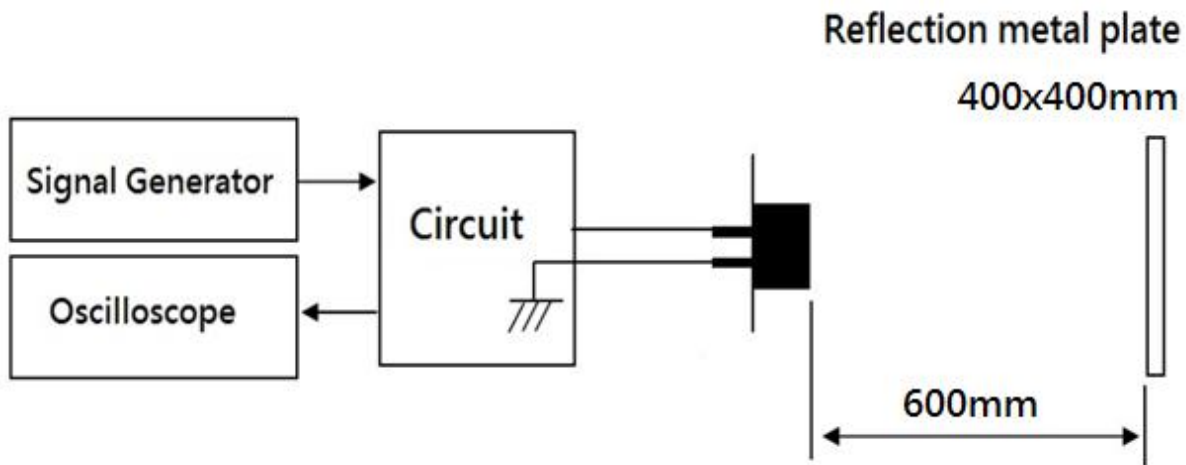
Unictron Technologies Corp.
2019-10-04

Document Control Center

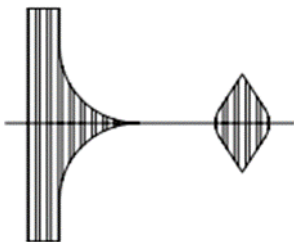
TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ± X . X = ± X . X X = ±		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com			
ANGLES = ± HOLE DIA = ±					
SCALE : free	UNIT : mm	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.			
DRAWN By : Sam Chen	CHECKED BY: Long Chen				
DESIGNED BY : Evan Su	APPROVED BY : Jeff Chang				
TITLE : A050A Air transducer		DOCUMENT NO.	H2KA050KA1CD00	REV.	A

2.2 Performance testing

Typical setup for sensitivity measurement



Circuit



Drive signal:

Rectangular 18 Vp-p; Frequency=50 kHz; Driving

Interval=20ms; Pulse n=10; Gain of receiving circuit: 64 dB

Unictron
Technologies Corp.
2019-10-04

Document
Control Center

TOLERANCES (UNLESS SPECIFIED OTHERWISE)

X = ± X.X = ± X.XX =

ANGLES = ± HOLE DIA = ±

SCALE : free

UNIT : mm

DRAWN By : Sam Chen

CHECKED BY: Long Chen

DESIGNED BY : Evan Su

APPROVED BY : Jeff Chang



詠業科技股份有限公司

Unictron Technologies Corporation

Website: www.unictron.com

THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.

TITLE : A050A Air transducer

DOCUMENT

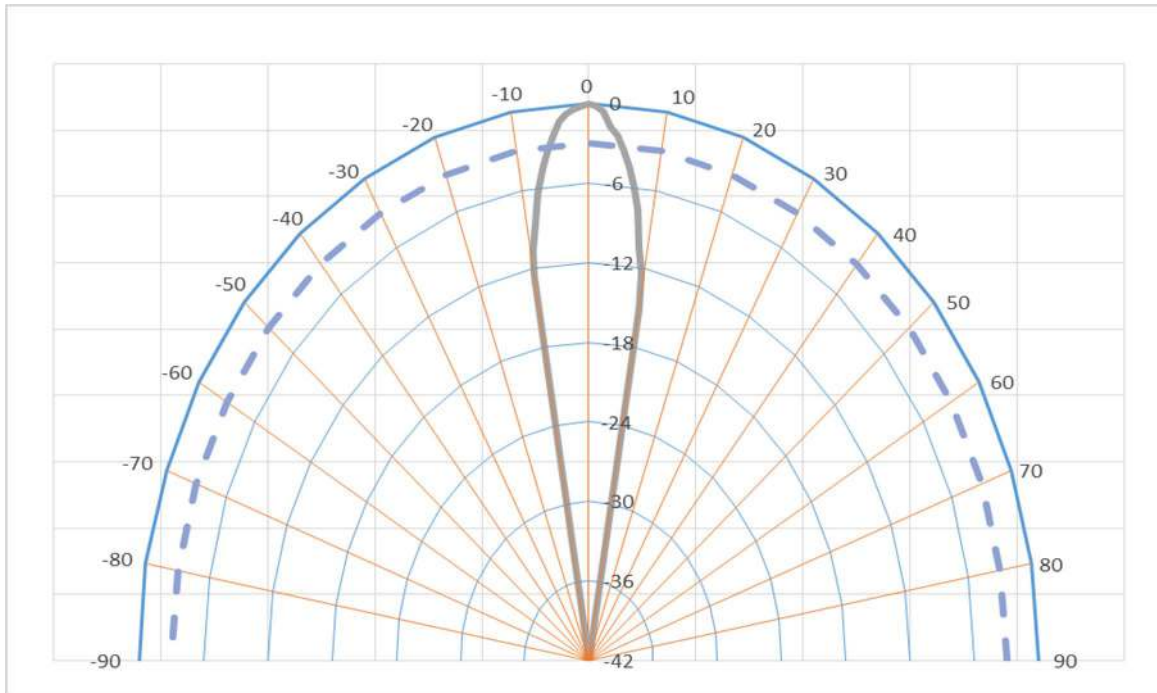
H2KA050KA1CD00


REV.

NO.

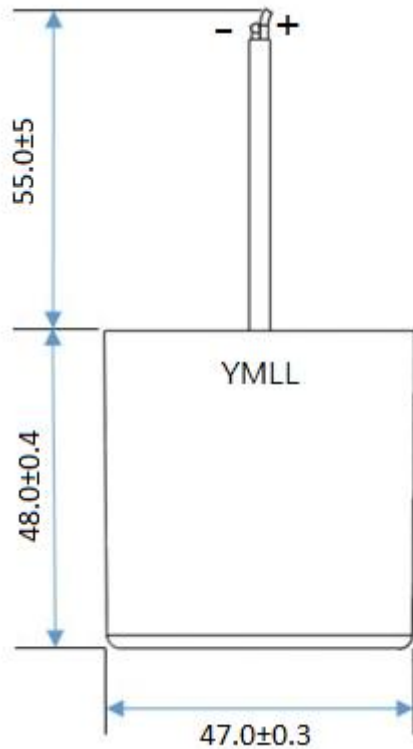
A

2.3 Typical directivity diagram



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ± X.X = ± X.XX =		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com			
ANGLES = ± HOLE DIA = ±					
SCALE : free	UNIT : mm	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.			
DRAWN By : Sam Chen	CHECKED BY: Long Chen				
DESIGNED BY : Evan Su	APPROVED BY : Jeff Chang				
TITLE : A050A Air transducer		DOCUMENT NO.	H2KA050KA1CD00	REV.	A


3. Dimensions



Housing material: PVDF
Unit: mm

Dimensions	Specifications	Unit
Height	48.0 ± 0.4	mm
OD (bottom face)	47.0 ± 0.3	mm
OD (open end)	48.0 ± 0.3	mm
ID (open end)	43.0 ± 0.25	mm
Cavity depth	Min. 26.5	mm
Wire (RG174U, 50 ohm, Ø2.7mm)	L55.0 ± 5	mm



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ± X.X = ± X.XX = ± ANGLES = ± HOLE DIA = ±		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com			
SCALE : free	UNIT : mm				
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.			
DESIGNED BY : Evan Su	APPROVED BY : Jeff Chang				
TITLE : A050A Air transducer		DOCUMENT NO.	H2KA050KA1CD00	REV.	A

4. Operation and storage conditions

Operating:

Temperature: -40°C to +85°C

Maximum driving voltage: 1000 Vp-p

Storage:

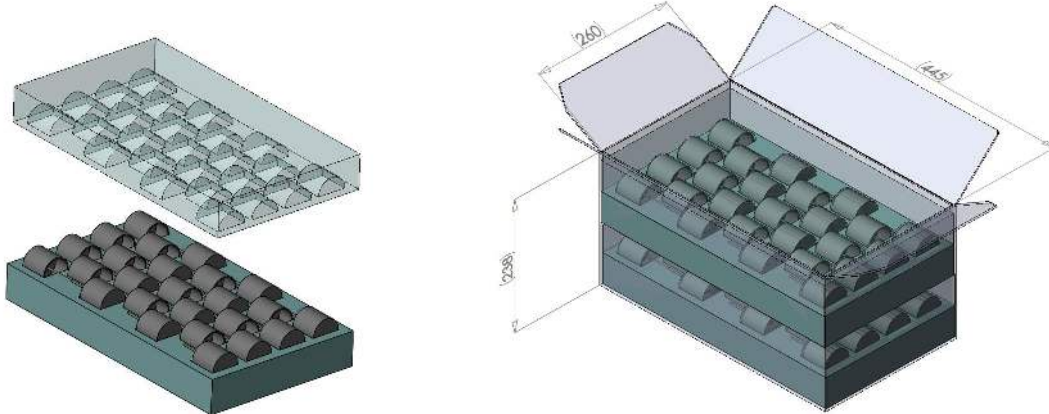
Temperature: -40°C to +85°C


Relative Humidity: 30-80%

5. Packing

5.1 Package

Quantity of transducers	50 pcs (25 pcs x 2 holders)
Reference for gross weight	6.8 kg

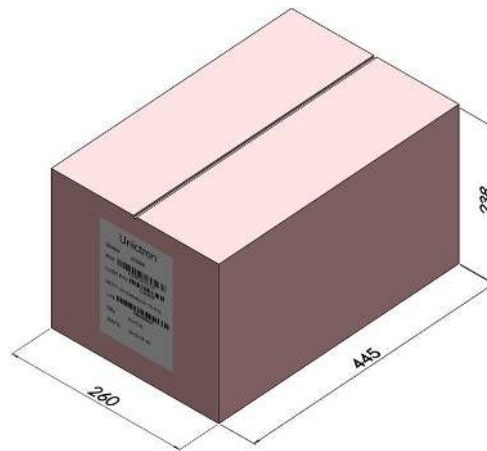
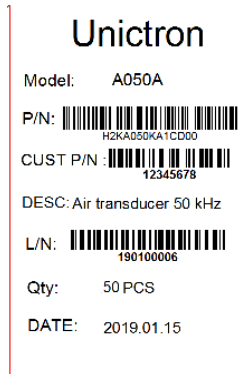


TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ± X . X = ± X . XX =		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com			
ANGLES = ± HOLE DIA = ±					
SCALE : free	UNIT : mm	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.			
DRAWN By : Sam Chen	CHECKED BY: Long Chen				
DESIGNED BY : Evan Su	APPROVED BY : Jeff Chang				
TITLE : A050A Air transducer		DOCUMENT NO.	H2KA050KA1CD00	REV.	A

5.2 Carton and Label

Carton Dimensions	445 x 260 x 238mm
-------------------	-------------------

Label on carton.



6.0 Notes and References

6.1 Piezoelectricity

When exposed to high temperature or high voltage, piezoceramic materials may lose its piezoelectric properties due to depolarization.

6.2 Soldering

Please use the soldering tip to connect the transducer onto circuit. The transducer is not designed for reflow soldering process. Do not put the transducer in the reflow oven.

6.3 Electric connection

Do not connect transducer to DC voltage.


6.4 Installation

Noise may be induced when the transducer is subject to vibration. Please protect the transducer with buffer material at installation.

6.5 Chemical resistance

The housing of the transducer is made of PVDF for chemical resistance. It is particularly suitable for the non-contact level detection in chemical tanks.



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ± X . X = ± X . X X =		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com			
ANGLES = ± HOLE DIA = ±					
SCALE : free	UNIT : mm	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.			
DRAWN By : Sam Chen	CHECKED BY: Long Chen				
DESIGNED BY : Evan Su	APPROVED BY : Jeff Chang				
TITLE : A050A Air transducer		DOCUMENT NO.	H2KA050KA1CD00	REV.	A