SENSOR for FUTURE

MEMS超音波センサ

MEMS ultrasonic sensor

多角的でより多目的なセンシングへ

Multi Purpose and Dimentional Detection

- 圧電薄膜(PZT)を使用したMEMS超音波センサ
- ミラーデバイス技術の応用により、2D・3D検出が可能
- チップ厚み0.38mm(トータル厚み0.48mm)
- センサ前後の物体検出および距離測定が可能

- Ultrasonic sensor using thin-film piezoelectric MEMS
- 2D and 3D detection with implementing structure of MEMS mirror device
- Ultra-thin thickness of 0.38 mm(Total thickness of 0.48 mm)
- Detect objects in front and behind and measure distance

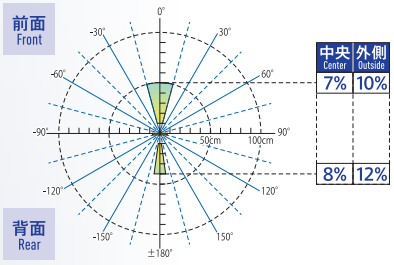
プロトタイプ(1D)検出領域と距離測定精度

Detection area and accuracy of distance measurement for prototype (1D)

※測定対象物:塩ビパイプφ90mm ※Measuring Object: PVC pipe ø90mm

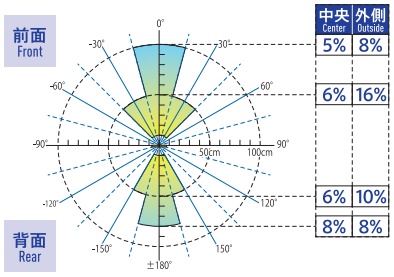
送受信器間距離5cm
5 cm distance between transmitter and receiver

送受信器間に高さ3mmの遮蔽板を設置
(受信器から2.5cmの位置)
Shielding plate with a height of 3 mm between transmitter and receiver
(Located at a distance of 2.5 cm from receiver)



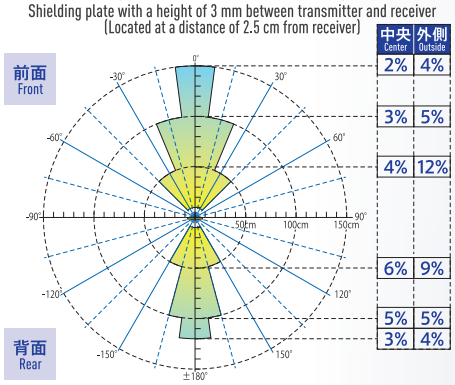
送受信器間距離8cm
8 cm distance between transmitter and receiver

送受信器間に高さ3mmの遮蔽板を設置
(受信器から3.5cmの位置)
Shielding plate with a height of 3 mm between transmitter and receiver
(Located at a distance of 3.5 cm from receiver)



送受信器間距離10cm
10 cm distance between transmitter and receiver

送受信器間に高さ3mmの遮蔽板を設置
(受信器から2.5cmの位置)
Shielding plate with a height of 3 mm between transmitter and receiver
(Located at a distance of 2.5 cm from receiver)



プロトタイプ構造

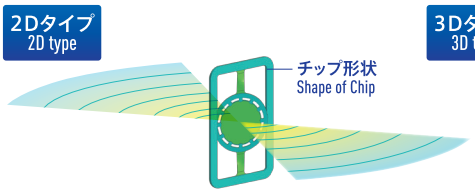
Prototype structure

1Dタイプ
1D type

超音波センサ(1D)と
ミラーデバイス機構
(XY軸駆動)を
ウエハに一体加工

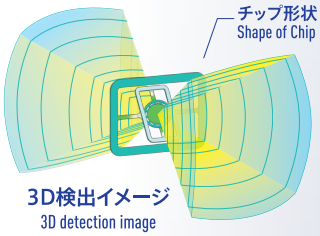
The integrated processing with the ultrasonic sensor "1D" and the mirror device structure "X-Y axis drive" on the wafer.

2Dタイプ
2D type

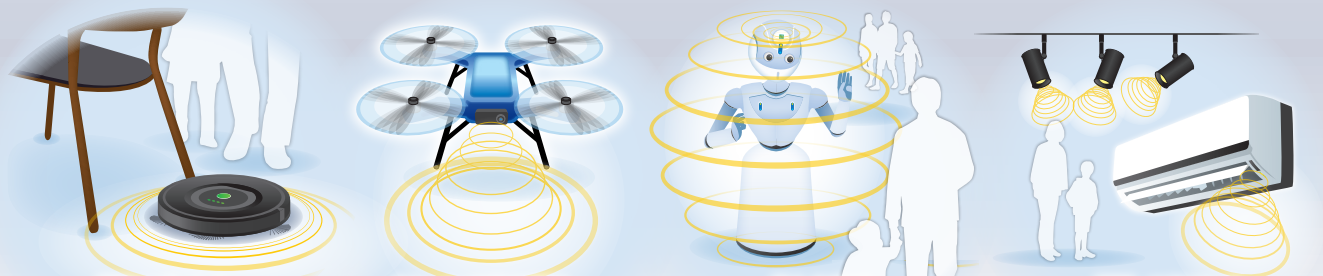


2D検出イメージ
2D detection image

3Dタイプ
3D type



3D検出イメージ
3D detection image



掃除ロボットの
障害物検知
Detection of obstacles for robotic vacuum cleaner

ドローンの高さ検知、
障害物検知
Detection of height and obstacles for drone

侵入を防ぎ、
安全を確保するエリアセンサ
Area sensor to prevent intrusion and ensure safety

照明、エアコンの
人感センサ
Human detection sensor for lighting and air conditioner

I-PEX SENSORS

第一精工株式会社
福岡事業所 電子デバイス開発部

TEL 0942-23-0911
E-Mail ultrasonic-sensor@daiichi-seiko.co.jp
Web www.daiichi-seiko.co.jp

Rev. 0.1 20180115