

Ultrasound, sensing the level

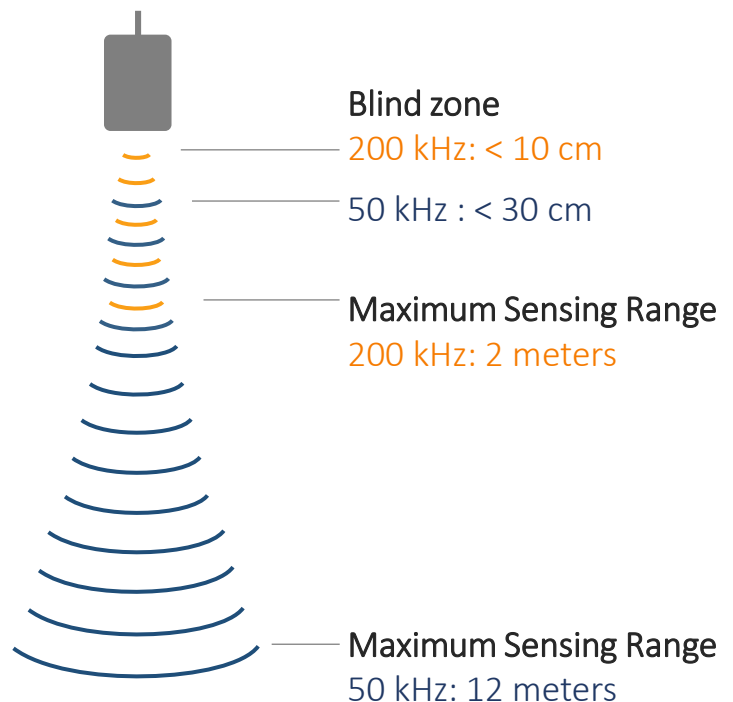
One step ahead of the world



Dual-frequency non-contact level detection

Y050T1 50/200 kHz air transducer

- Long sensing range
- Short blind zone
- High resolution
- High reliability
- Waterproof IP68
- Chemical resistance
- PVDF housing (FDA compliance)
- Patented technologies



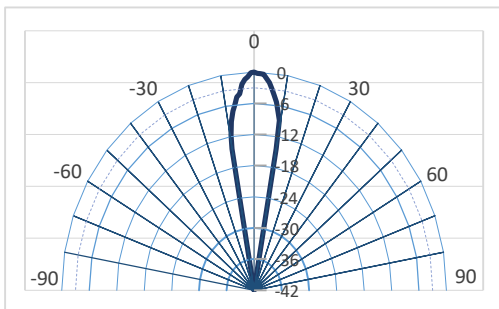
Y050T1 is a novel dual-frequency ultrasonic air transducer working as a signal transmitting and receiving unit. The dual-frequency transducer can detect as long as up to 12 meter range at 50 kHz operating mode along with only 10 cm blind zone at 200 kHz mode. This ultrasonic transducer is particularly suitable for non-contact level detection and proximity measurement with high resolution, long sensing range, short blind zone as well as exceptional reliability.

Specifications

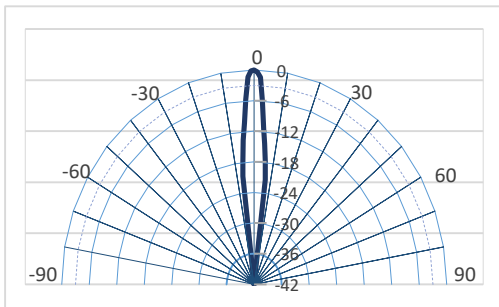
Y050T1 (P/N: H2KY050KT1CD00)	50 kHz	200 kHz	
Operation Frequency	50	200	kHz
Capacitance (@1 kHz, 1Vrms)	1500	1500	pF
Directivity (Full Angle @-3 dB)	10	6	degree
Maximum Driving Voltage (2% Duty Cycle Tone Burst)	1000	1000	Vpp
Maximum Sensing Range	12	2	meter
Blind Zone	< 30	< 10	cm

Directivity Diagram

50 kHz



200 kHz

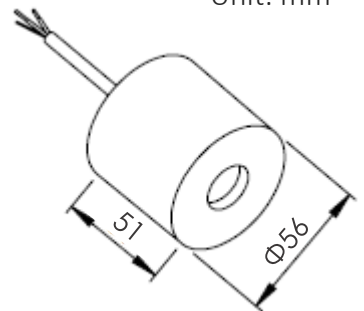


Major Applications

- Proximity measurement
- Non-contact level detection
- River level monitoring
- Petrochemical industry
- Food and beverage industry
- Water supply and drainage industry
- Grain, powder, granular material level detection

Dimensions

Housing material: PVDF
Unit: mm



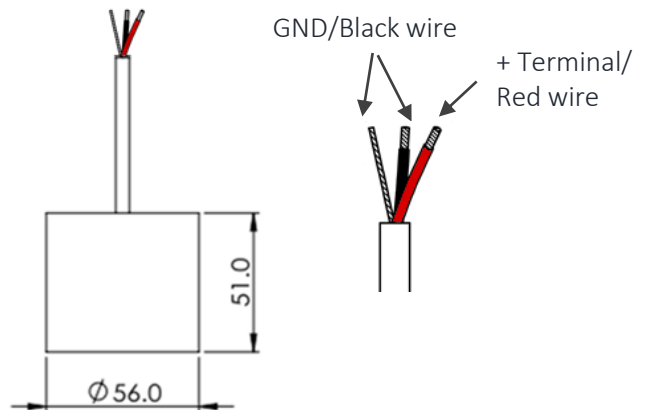
Driving Conditions

- Driving voltage is less than 1000 Vp-p, with 3-20 pulses under tone-burst conditions.
- To get long sensing range and short blind zone, the driving can be set as 50 kHz for sensing range > 2 meter, while changed to be 200 kHz for sensing range ≤ 2 meters.
- Do not connect the transducer with DC voltage.

Conditions	Values		Unit
Operation Frequency	50	200	kHz
Driving Voltage	< 1000	< 1000	Vp-p
Sensing Range	0.3 - 12	0.1 - 2.0	meters
Interval of Driving	> 20	> 20	ms
Pulse Number	3 - 20	3 - 20	pulses

Electromagnetic Shielding

- Y050T1 air transducer has been designed with metal shielding inside.
- Please connect positive wire (+) (red) with signal wire, and connect the negative wire (black) with the ground wire (bare wire).



Receiver Circuit for Reference

Y050T1 is a transceiver with transmitter and receiver in one unit. Reference receiver circuit is as below figure. OPA (Operational Amplifier) with 2-4 stage amplifiers are suggested enlarging the receiver signal. Grounding is also suggested to minimize noises.

