

# Transducers



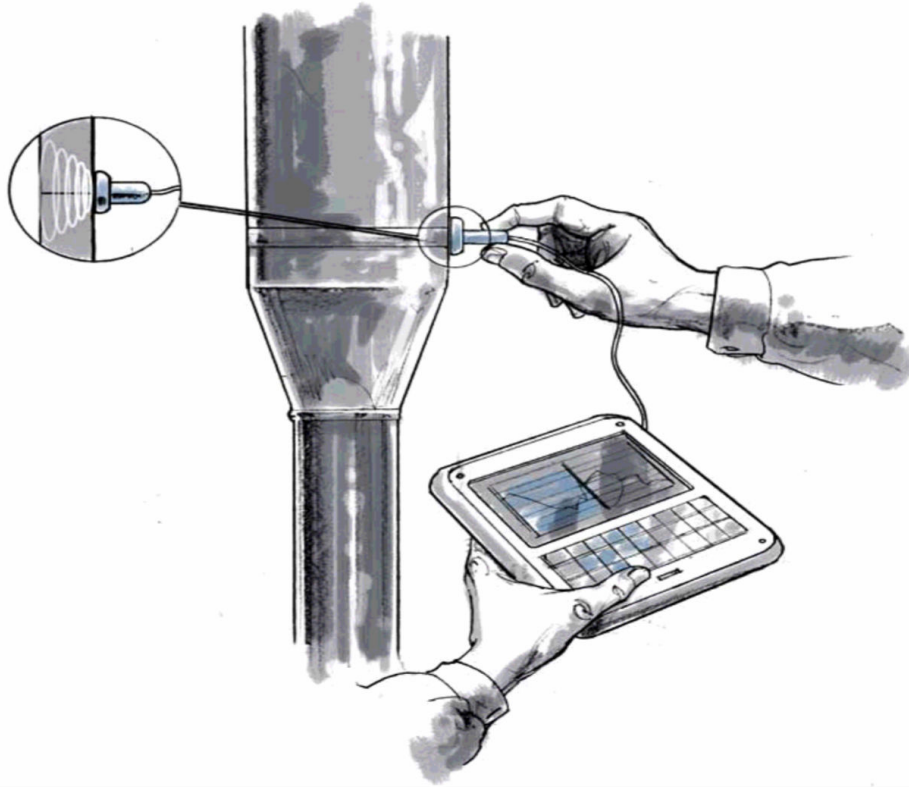
Piezoelectric transducers typically transmit and receive waves used for sensing. It converts energy from one form to another. The piezo transducer can convert electric charges into energy, for instance ultrasonic waves. A piezo transducer typically operate at resonant frequency with various construction options, beam patterns and power levels.

## ADVANTAGES OF PIEZO TRANSDUCERS

### Advantages of piezo transducers

- Reliable, robust and compact
- Low energy consumption
- Active signal producing component — no powering needed
- Extremely high temperature range
- Linearity over four decades
- Time stable and long lasting
- High frequencies
- Bidirectional electromechanical conversion

## APPLICATIONS USING PIEZO TRANSDUCERS



### Where can you use your piezo transducer?

Piezoelectric transducers are used in a long range of high quality applications that can be used in many different industries, e.g.:

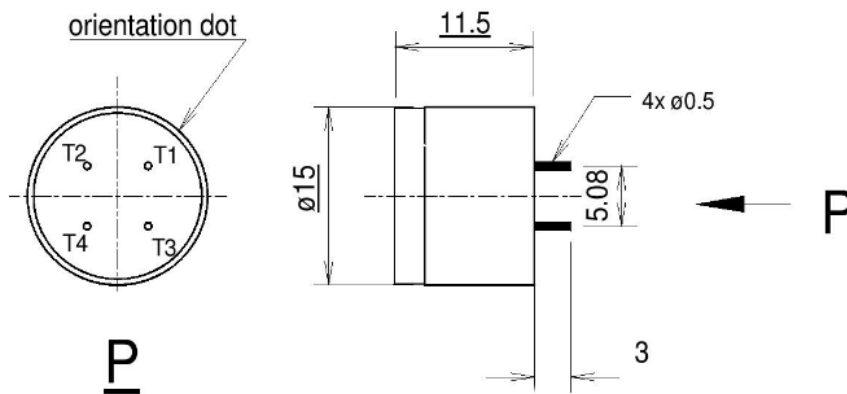
- [Flow meters](#)
- Distance measurement
- Mechanical energy converters
- [Level measurement](#)
- [Underwater sonar](#)
- [Medical scanners](#)
- [Non-destructive testing equipment](#)
- [Ultrasonic cleaning](#)
- [Ultrasonic welding](#)
- Seismic investigations

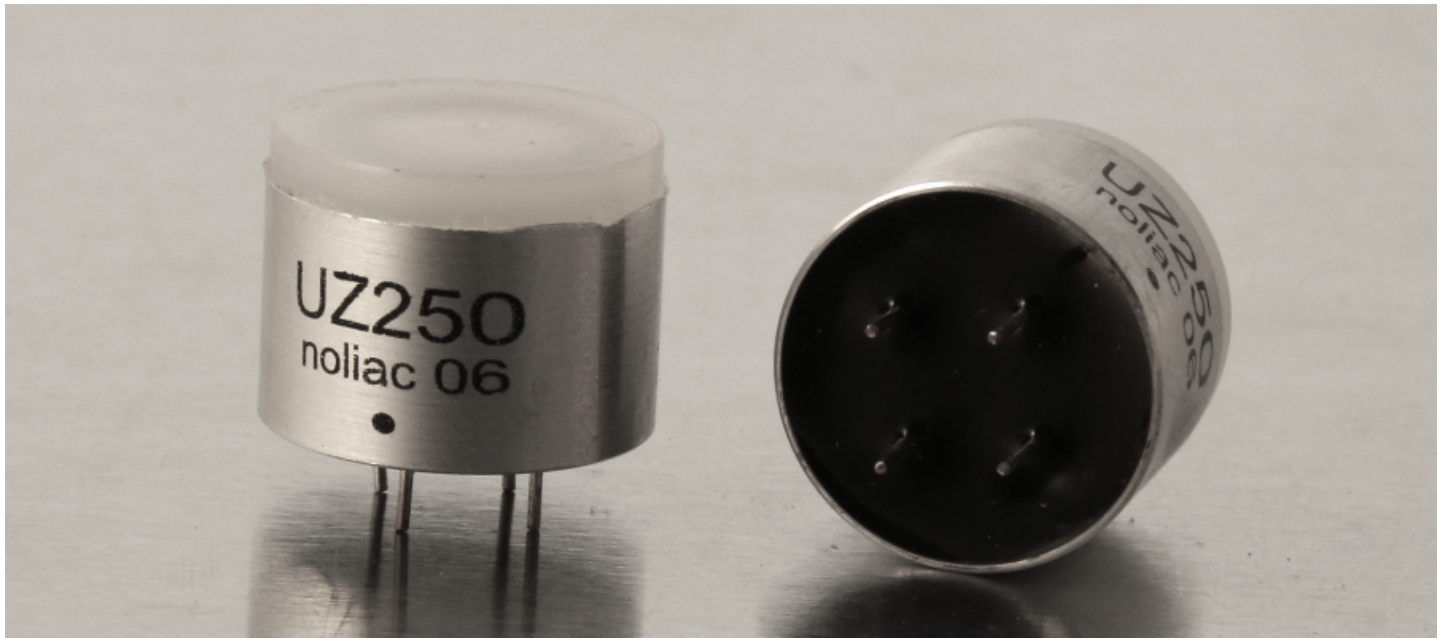
[Have a look at our examples of applications](#)

## PRODUCT EXAMPLE: UZ250

Parameter	Unit	Min	Typ.	Max	Remark
Nominal frequency	kHz		250		
Frequency range	kHz		50		
Nominal sensitivity	mV/V		3		For the flat rigid target in 100 mm distance Driving: 5 pulses, 9 V, 2us/2us
Mass	g		4,8	5,3	
Current consumption	mA		1,3	1,6	at 9V
Supply voltage	V	5	9	30	T3, T2 pins
Driving voltage (peak)	V			160	Pulse positive polarity is preferable
Measuring range low limit	mm		50	65	Blind distance after pulse excitation
Measuring range high limit	mm		200		depends of noise level and excitation voltage -could be extended many times
Environmental					
Temperature range	°C	-5		+50	Exceeding temperature limits could cause irreversible changes in sensor parameters.
Ingress protection	—	Sealed, potted			
CE conformity	RoHS				

### Dimensions (mm)





**The UZ250 is a piezoelectric ultrasonic pick-up designed for pulse radiation in the frequency band of 250 kHz.**

### **Description**

The pick-up consists of a piezoelectric element connected to a small printed board with internal electronics. EMC (including EDS protection) is achieved by shielding. The main part of the sensor is an ultrasonic transducer. The ultrasonic transducer consists of a damped piezoelectric element and tuned resonance plate. The piezoelectric element is connected to an electronic circuit that consists of a matching circuit, transmitter, and preamplifier. This amplifier transforms small reflected signal from high impedance piezo to low impedance modulated output voltage.

### **Features**

- Suitable for distance meters and flow meters in gas
- High sensitivity
- Low driving voltage
- Internally amplified
- ¼ MHz operating frequency
- Simple assembly on printed board
- Shielding and EDS protection
- Short blind distance

### **Where can you use UZ250?**

The UZ250 ultrasonic transducer is used in a long range of high quality applications that can be used in many different industries, e.g.:

- [Flow measurement](#)
- Distance measurement
- [Level measurement](#)