



## YoUScan!

Non destructive testing with air-coupled ultrasonic.

### Air-coupled ultrasonic

The air-coupled ultrasonic is a special kind of non-destructive material testing. In opposite to usual ultrasonic examination with a contaminating couplant, mostly water or gel, the object is not "touched". With respect to many modern test objects this is a big advantage. Beside a much simpler measuring equipment many inspection tasks especially with modern multi-material components do not allow couplant remains. However, the inspection method is challenging enough. The big gap between air and any material regarding acoustic impedance results in a high attenuation of the ultrasonic signal along its way to the receiver. By combining different, powerful air-coupled ultrasonic transmitters and highly sensitive, low-noise air-coupled ultrasonic receivers, modern electronics and an innovative analysis and evaluation software YoUScan! inspects plastics or composite materials and especially adhesive bonding of multi-materials. YoUScan! can be integrated with different manipulation systems like an industrial robot. The system provides appropriated interfaces to design different applications right in the manufacturing line or in the laboratory.

### Inline system



- The air-coupled ultrasonic test system YoUScan! can be integrated in a production process to inspect 100 percent of the products.
- Different manipulators can be used for triggering the measurement.
- YoUScan! provides several means for automatic classification (OK/not OK).

### Laboratory system



- YoUVision is available as laboratory system consisting of 2 channel measuring electronics, several transducers, analysis software (YoUVision) and a three transversal axes manipulation system.
- The system permits the possibility to measure in transmission or puls-echo mode (with dedicated transducers for transmission and receiving).

### Adhesive joint control



- Adhesive bondings are very common nowadays. Air-coupled ultrasonic testing with YoUScan! permits the evaluation of the bondings quality.
- YoUScan! reveals the homogeneity of glue.
- Also adhesive bondings between metals like steel and aluminium can be inspected.

## Defect analysis



- Cracks, inclusions or pores inside plastics or composite materials can be easily detected.
- Switching between C-scan with amplitudes or transmission time is possible.
- Switching between C-scan and A-scan at an particular position and a lot of user configurations ensure optimal inspection results.
- Automation of inspection, analysis and evaluation is provided by additional services.

## Plastics weld joint control



- Welding seams can be analysed in plastics or comparable materials.
- Pores and inclusions become visible.

## Surface analysis



- Because of the huge reflection rate a robust and easy applicable method for surface inspection is given.
- The resolution depends on the frequency used. The recognition of flaws less than 1 mm is possible.

## YoUScan! technical equipment

### Transmitter

Output voltage	400 V (peak - peak)
Transmission frequency	50 kHz - 12 MHz
Time per single measurement	2 - 5 ms
Periods per burst	1 - 20
Coding burst	Yes (Chirp, Golay A&B, Barker)
External trigger	For each channel, TTL-level, optional custom connection
Channels	2

### Receiver

Bandwidth	max. 50 kHz - 20 MHz
Pre-amplifier	0, 30, 60 dB
Main amplifier	0 - 50 dB in 0,5 dB steps
Channels	2
ADU resolution	14 Bit at 100 MS/s

### Three transversal axes manipulator

Total area of the manipulator desk	850 x 750 mm
Move distance X x Y	530 x 500 mm
Max. sample width	190 mm
Positioning repeatability	+/- 0,02 mm
Max. measurement speed	5 mm/s