SONOTEC

Ultrasound Testing Device

SONO-PR 10

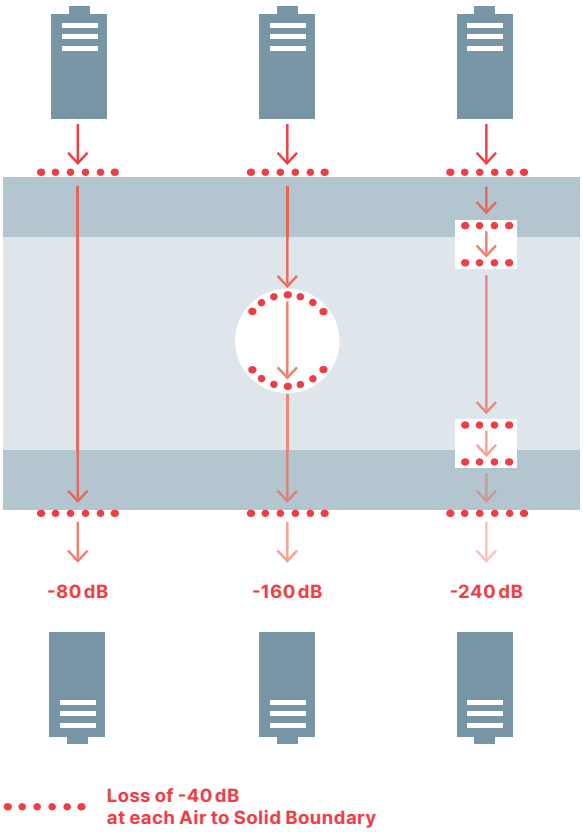
For Air-Coupled Ultrasonic Testing

MADE IN GERMANY

Nondestructive Testing

The Principle of Air-Coupled Ultrasonic Testing

- New challenges for testing lightweight components where conventional methods cannot be used and contamination with couplant is not desirable
- Air-Coupled Ultrasound Testing (ACUT) allows contact-free testing without the use of additional coupling fluids
- Send-receive configuration with the test item in between 2 transducers placed opposite to each other
- The sound attenuation between sender and receiver is evaluated at a specific point (point measurement)
- By taking multiple measurements and moving the transducers it is possible to scan a larger area



Features

- Integrated A/D converter
- Analog HF output
- Operation via touch panel
- Trigger input and output
- Saving configurations in the display
- Freely configurable burst transmitter up to 20 pulses

Measurements

- Of attenuation and sound propagation time of the acoustic signal
- On highly attenuating materials which are impossible or difficult to test with liquid coupled ultrasonic inspection systems
- Particularly used for foams, multi-layer honeycombs, plastics, ceramics, wood, and concrete inspection
- Modern fibre-composite structures such as CFRP or GFRP can be inspected without any compromises

Advantages

- Affordable introduction to air-coupled ultrasound
- High flexibility of the device
- Large spectrum in the air-coupled ultrasound range
- Wide range of applications
- Simple system, not automated
- No PC necessary

Components

1

Air-Coupled Probes

Maximum resolution and highest sensitivity due to state-of-the-art SONOTEC piezo-composite technology incl. element focusing

2

Up to 4 Channels

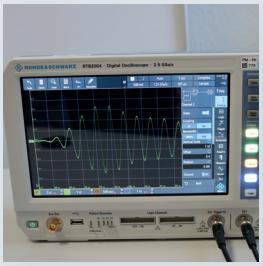
Up to 4 independent transmitter and receiver channels with configurable square-wave burst pulser and low-noise pre-amplifiers

3

Interfaces

Digital interface to extend the functionality

4



No PC Necessary

Operation and evaluation directly on the device via integrated touch panel – no additional computer required

Technical Data

General Data	
19" Unit consisting of	Ultrasonic transmitter, ultrasonic receiver, analog/digital converter
Operating Temperature	5 °C to 40 °C
Network Interface	1 Gbit LAN
Protection Class	IP20

Pulser	
Number of Channels	1 to 4
Pulse Height	10 V to 500 V
Frequency Range	40 kHz to 10 MHz
Type	Square wave burst (configurable width for each pulse)

Receiver	
Number of Channels	1 to 4
Frequency Range	35 kHz to 15 MHz
Gain with integrated CFC preamplifier	20 dB to 140 dB, 0.5 dB increment
Gain with standard external preamplifier	0 dB to 120 dB, 0.5 dB increment
Noise	1 nV/√Hz

A/D Converter	
Resolution	14 Bit
Scan Rate	Up to 50 MS/s

Interfaces	
Inputs	Multi-channel: digital and analog
Outputs	Multi-channel: digital

Applications

- **Non-contact ultrasonic testing for defect detection and material characterization on different materials**
  - → **Testing of bonded joints**
  - → **Testing of fiber composite materials such as GFRP and CFRP**
- **Suitable for materials that are difficult to test, such as foams, metals, plastics, and ceramic materials**
- **Enables building material testing of bricks, composite panels, concrete, and wood**
- **Honeycomb structures with different core and cover layers**

Contact and Support

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