Are you familiar with our industrial-grade accredited inspection services?

- Accredited laboratory in line with DIN EN ISO / IEC 17025, to qualify and validate new non-destructive testing (NDT) processes for industrial applications
- Accelerated time-to-market and opportunity for qualified, norm-compliant deployment in industrial applications as well as for complete new in-house developments or custom adaptation of innovative NDT technologies, even in fields where norms have not been established
- Certification of the corresponding quality management system in accordance with DIN EN ISO 9001
UNIUS – Flexible high-performance, single-channel ultrasound electronics

In the context of the technological evolution known as «Industry 4.0» – which is a slogan for a multitude of technical measures to enable controlled processes instead of inspected processes – the requirements imposed on ultrasonic inspection systems rise to the same extend as the development progresses. Requests include adaptability to highly different application scenarios, steadily increasing sampling and data transfer rates while concurrently enhancing signal quality, and flexible and prompt integration of the inspection systems into existing customer production lines.

UNIUS is Fraunhofer IZFP’s solution for technical challenges addressed to current single-channel ultrasound inspection systems.

Technical data

**General**
- Power supply: 12 V ±10%, 9W - 14W (depending on inspection parameters)

**Data sampling**
- ADC: 14Bit at 240 MSamples/s sampling rate
- 128 kSamples sampling depth
- Up to 511 averages
- Echo-start function

**Receiver**
- 100 dB dynamic range
- 22 MHz analog bandwidth
- 2:1 multiplexed receiver channel, enabling T/R or I/E operation
- Up to 8 analog input filters (5 onboard + 3 pluggable)

**Transmitter**
- Onboard transmitter topology: rectangular, negative, burst-capable
- Adjustable onboard transmission voltage up to 300 V (optional external supply up to 500 V)
- Shot repetition rate up to 10 kHz

**Ports**
- Flexibly configurable I/O ports (to control external components, etc.)
- USB 3.0 port for plug-and-play connection with host PC (e.g. as a laboratory system)
- Proprietary optical interface (e.g. for industrial applications in electromagnetically polluted environments)
- 128 MByte internal data cache for rapid measurements

**Software support**
- Inclusion in different frameworks (C++, C#, LabView, etc.) via integration toolkit (ITK)

**Applications**
UNIUS is a versatile, high-performance, single-channel ultrasound board covering a multitude of customer applications (defect inspection, prove of purity level, etc.) out of the box. The system is available as benchtop model and as a mobile and sturdy variant in form of an industrial notebook compliant to IP65 protection rating. Additionally, when using ITK software interface UNIUS can easily be integrated into customer-specific systems for manual or automated inspections. Moreover, the option for application-specific firmware adaptations referred to customer demands completes the UNIUS service portfolio.