

PCUS[®] pro Array II – Phased-array ultrasonic frontend

Full parallel phased-array frontend (128:128) for high-speed automated testing of weldings, wheelsets and CFRP structures.

Up to 128 elements for large or multiple probes

The PCUS[®] pro Array II is a complete phased-array ultrasonic frontend for use in automated and manual inspection systems using conventional or FMC/TFM techniques. The integrated scanner interface and versatile connection options allows the direct connection of up to four incremental encoders and control signals. Due to the full parallel design the PCUS[®] pro Array II device is ready for high performance testing using newest and data intensive acquisition methods. Up to 320 MB/s data transfer via USB3 makes it suitable for testing at highest speeds with flexible parameterization. The device can be used with the PCUS[®] pro Lab software or with our .NET SDK (Software Development Kit), allowing full control over all hardware functions in customized solutions.



PCUS[®] pro Array II frontend – front side.

PCUS[®] pro Array II Details

Category	Characteristics	Value
General	Dimensions (L, W, H)	272 x 222 x 90 mm ³
	Weight	5.2 kg
	Operating temperature and humidity range	5...50 °C @ 75 % relative humidity (non-condensing)
Transmitter	Number of transmitters	Up to 128
	Transmitter pulse voltage into internal 50 Ω	±10 to ±85 V adjustable
	Pulse	Bipolar rectangle pulse
	Output impedance	< 10 Ω
	Pulse width	0 to 500 ns, in steps of 2 ns
	Pulse rise/fall time	< 9 ns
	Pulse delay	0 to 30 μs, in steps of 2 ns
	Pulse repetition frequency	Up to 15 kHz

PCUS® pro Array II Details

Category	Characteristics	Value
Receiver	Number of receivers	Up to 128
	Input mode	Impulse/Echo
	Frequency range	500 kHz to 30 MHz
	Input impedance	50 Ω
	Filters	4 analog band filters, digital filter
	Preamplifier gain	0/20 dB switchable
	Main amplifier gain	0 to 80 dB, maximum input signal 2 Vpp (100 % screen height)
	TGC	0...80 dB, max. 40 dB/ μ s
Signal path	Probe delay	0 to 524 μ s, in steps of 8 ns
	Maximum recording length	65535 samples
	A/D converter	14 Bit, 125 MS/s
	Gates	One start gate and four measurement gates
	Rectification	None, positive-, negative-, or full-wave
Interface and connectors	Array transducer connector	1x I-Pex or 2x I-Pex
	PC interface	USB 3.0 super speed/high-speed/full speed, USB 3.0 B-type connector
	Trigger in/out	TTL level on DSUB 44 I/O connector
	General purpose I/O (GPIO)	3 digital inputs, 3 digital outputs, 2 auxiliary analog inputs on DSUB 44 I/O connector
	Scanner interface inputs	4 axis, RS422 level on DSUB 44 I/O connector
	Power supply	24 V DC, max. 8 A, Bulgin connector PX0412/3P
Software	Digitally signed drivers for Windows® (Windows® 7 or higher), x86 and x84	
	For proper USB 3.0 operation, Windows 8.0 or higher is strongly recommended!	
	Managed .NET SDK based on .NET 4.8	
System conformity	The PCUS® pro Array II system meets all relevant requirements of ISO 18563-1	

Disclaimer

Distribution and copying of this document, utilization and reporting of its contents are prohibited – even in parts – if not explicitly allowed. Violation commits to amends. All rights reserved, especially if a patent is assigned or a trademark is registered.

Christian Richter

Fraunhofer Institute for Ceramic Technologies and Systems IKTS
Maria-Reiche-Strasse 2, 01109 Dresden, Germany
Phone +49 351 88815-635
christian.richter@ikts.fraunhofer.de

341-D-24-08-15

