Waygate Technologies™
a Baker Hughes business

Krautkrämer USIP|xs CV
ESSENTIAL & PERFORMANCE LINE

Multi-channel conventional ultrasonic instrument platform

- Industry-leading automation capabilities
- Scalable platform for utmost synergies
- Intuitive user interface for maximum ease of use

Krautkrämer USIP|xs CV is the all industrial purpose, multi-channel conventional ultrasonic instrument for integration into any automated and semi-automated inspection system.

Fast and easy to use

The plug-and-play instrument lives up to the latest usability standards and comes equipped with a vast array of integrated diagnostic features. The result: A quick start-up and operation without excessive staff training and learning efforts.

The integrated box design makes the instrument extremely easy to maintain in comparison to slot card type electronics due to fewer parts and interfaces.

Effective integration

Industry-leading automation and integration capabilities enable even the most complex systems to be built with less effort. Multiple interface standards make USIP|xs CV one of the best equipped instruments for effective integration into automated systems. The integrated field bus connection allows for a single cable connection to any PLC and minimizes wiring when designing larger systems.

A perfect fit for every application

As one of the largest platforms of conventional ultrasonic instruments, Krautkrämer USIP|xs CV offers UT performance and channel count that can be fully tailored to individual customer requirements – instead of a “one-size fits all” approach.

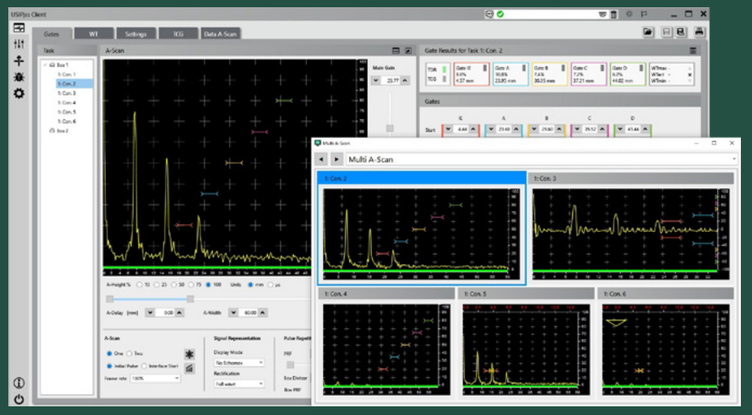
The platform concept creates synergies concerning technical infrastructure, instrument cost and integration know-how. This reduces the complexity in setting up and maintaining inspection systems since the scalable platform will offer the perfect instrument for any kind of system type and inspection need.

While the ESSENTIAL line is ideal for midrange applications with a high channel count – from 2 up to 12 channels for single instruments, the PERFORMANCE line was designed for more demanding use cases in UT. The high-end solution is equipped with 2, 4 or 8 channels that can be operated in parallel, allowing for more complex applications and a higher inspection speed if needed. Both instrument lines are available as single and multi-instrument systems.

Intuitive user interfaces for successful projects without excessive staff training

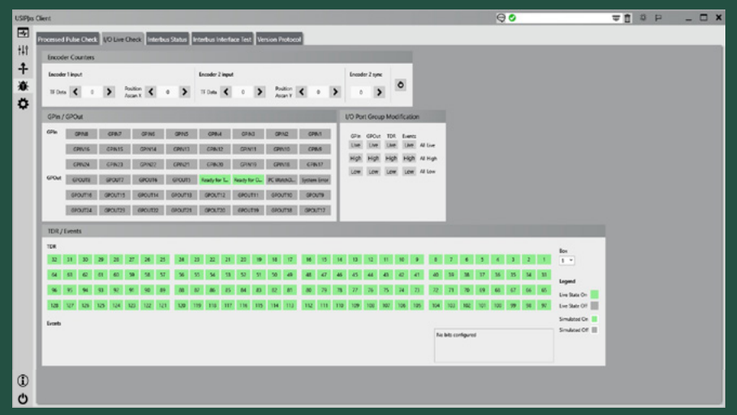
Graphical user interface (GUI)

- Graphical user interface compliant with the latest usability standards
- Up to 8 parallel A-Scans enable optimized inspection control
- All digital filters and up to 4 amplifiers per channel enable optimum setups under almost any inspection condition
- TCG function can be applied without limitations over the whole dynamic range



Interface monitoring

- Developed based on decades of experience as the leading manufacturer of ultrasonic testing systems
- Comprises a vast array of diagnostic tools and remote diagnostics capabilities to save time and efforts during start up, installation and commissioning



Software development kit (SDK)

Access all inspection raw data through the SDK:

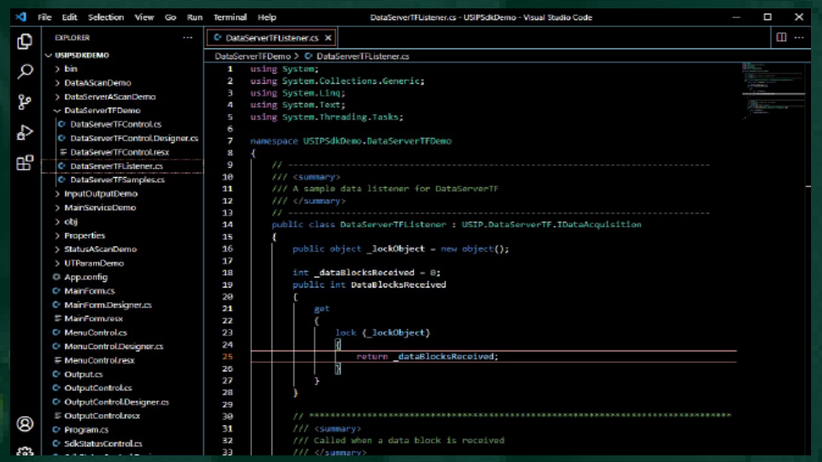
- Collect gate data (amplitude, time of flight, gate events) for further processing in a customized inspection data display, evaluation or recording.
- Record digital Data A-Scans in real time for a fully customized evaluation.

Data A-Scan capabilities: Up to 4096 samples; configurable resolution per channel to reduce data size. Content per sample:

- 1x amplitude value (rectified amplitudes), resp. 2x (RF amplitudes)
- Encoder data x, y position (optional)
- Gate data: amplitude, time of flight (optional)
- Configurable amplitude resolution 16 bit or 24 bit (global parameter)

For eased communication within a system, the SDK unlocks additional digital I/O interfacing capabilities that can be used via the SDK-API, e.g. for PLC handshake, Inspection start/stop, Ready for testing, etc. :

- OUT: 3x via D-Sub, 12x via bus gateway; IN: 7x via D-Sub, 16x via bus gateway
- The SDK software supports C# / .net.2, 5 or 10 licenses for use of the Krautkrämer USIP|xs CV Software Development Kit with one Krautkrämer USIP|xs instrument or multi-instrument assembly and within an offline development environment
- Software
- Programmers handbook
- HTML File with sample codes and support text
- Language of software and documentation: EN



Ultraproof 2.0 chart recording software

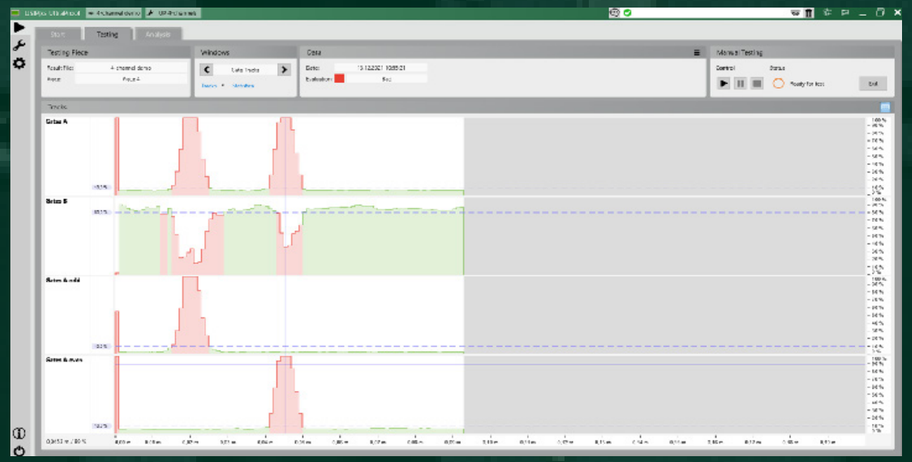
Digital strip chart recording software for installation on the USIP|xs system's PC.

- Digital data interface to the USIP|xs single instrument or multi-instrument arrangements
- Records and displays the results of up to 160 gates per instrument
- Representation of event, amplitude and ToF [mm, inch] information
- All gate information can be grouped and assigned to suitable tracks according to the individual user requirements
- Strip chart display can be grouped into up to 8 configurable views containing up to 16 strip chart tracks each
- Max. 25000 length segments recordable per test piece (segment length configurable)
- Single piece or batch operation
- Start/pause/stop control via external test data release signals or manual
- "Ok" / "Not Ok" evaluation and interface signal
- Configurable statistics
- Report generator
- csv data export
- Viewer mode for review of stored inspection results

Feature availability, interfaces, look & feel and software operation vary from USIP40-Ultraproof. In case of specific needs or requirements, we recommend a software demo.

The scope of supply consists of:

- License for use of the Krautkrämer USIP|xs Ultraproof software with one Krautkrämer USIP|xs instrument or multi-instrument assembly
- Software
- Software manual
- Language of software and documentation:
  DE, EN, ES, FR, IT, PT, ZH, JA



K-Scan Acquire & Analyze

Krautkrämer USIP|xs K-Scan Acquire adds C-Scan style data acquisition capabilities to your USIP|xs instrument.

Completely redesigned and with the new USIP|xs look and feel, the **Acquire** module offers:

- Digital data interface to a USIP|xs single instrument system
- Processing of 2 encoder axes for the acquisition of meander, comb, or cylindrical inspection paths
- Data acquisition resolution down to 0.1 x 0.1 mm / 0.004 x 0.004 inch if supported by encoder resolution and inspection speed
- Data acquisition of up to 12 channels fully parallel
- Full A-Scan data acquisition with up to 4096 samples per A-Scan including gate data; all data packages are linked to the related position data. File saving can be either full A-Scan data with gate data or gate data only.
- Live display of A-, B- and C-Scan images individually for each channel (task) during recording
- Manual test start and stop; automatic control of data recording through the test data releases from the instrument

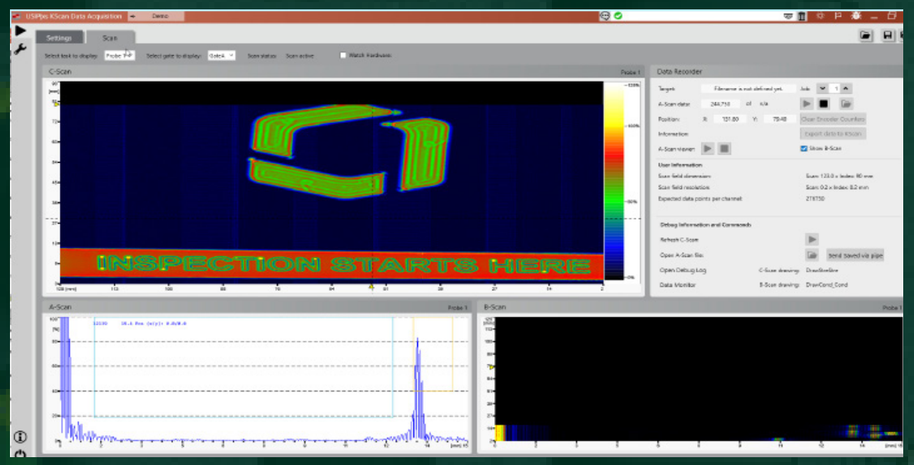
The scope of delivery also includes the Krautkrämer USIP|xs software module K-Scan Analyze.

The **Analyze** module with the familiar USIP 40 look & feel offers the following functions based on the inspection data gathered by the Acquire module:

- Automatic defect detection
- Full A-Scan data evaluation
- For recorded original data: Subsequent change of gate position and corresponding evaluation
- Plug-in SEP 1927 cleanliness inspection
- Reporting functions

Complete scope of delivery:

- License to use Krautkrämer USIP|xs K-Scan Acquire and K-Scan Analyze with a Krautkrämer USIP|xs single instrument system
- Software installer & manual on USB stick
- Software languages: DE, EN, FR, IT
- Documentation languages: DE, EN



Power supply & interfacing accessories

Power supply

Power supply desktop
If the instrument is to be operated on a desk, a desktop power supply can be connected. Equipped with Lemo style power supply connector for connection to the USIP|xs instrument. Requires a power cable with region specific power plug.
Region: EU, USA, JPN, CN
SAP ID: 110N2852

Power cable with plug
Connection of the desk top style universal power supply unit to a standard wall power outlet. Length: 1,5m.
Region: GER; SAP ID: 0102985
Region: USA, CAN; SAP ID: 0102986

Industrial power supply
For rail mounting inside an electrical cabinet. Type Siemens SITOP. Input: AC 120/230V; Output: DC 10A, 24V.
Region: EU, USA, CAN; SAP ID: 0118740

Interfacing

USIP|xs - USIP 40 Sub-D adaptor
For easy replacement of USIP 40 by USIP|xs: Plugs into the 78-pin Sub-D connector of USIP|xs and provides connectors compatible to USIP 40 cabling (note that the number of analog outputs is not the same).
SAP ID: 110N2913

Interface terminal 78-pin D-Sub
78-pin interface terminal clamp for installation on a mounting rail. For connection of interface cable to the USIP|xs 78pin plug connector. Requires the Interface Cable to connect to USIP|xs.
SAP ID: 0118742

Interface cable 78-pin
Needed to connect from the 78-pin Interface Terminal to USIP|xs 78-pin connector.
SAP ID: 0118743

Interbus gateway
Anybus Gateway (AB7516) to connect USIP|xs to customers' PLC. This Gateway will act as a slave on Profinet IRT with RJ45-connector. Requires Interbus Connection Cable M12 to 9-pin (SAP ID 0742349).
SAP ID: 0120006

Interbus cable M12 to 9-pin / 2m
Connects Interbus Gateway to the USIP|xs Box' Interbus connector.
SAP ID: 0742349

Interbus cable M12 to open wire / 2m
Connects customized interbus interfaces to the USIP|xs Box' Interbus connector.
SAP ID: 0118746

Probe connector box
8-channel probe connector box. Aluminum housing with 8x Lemo 1 Coax sockets. 8 x 25m +/-200mm free cable length; cable shielding Triax; each cable equipped with 1x Lemo 1 Triax plug. For direct connection to USIP|xs CV instrumentation the respective adapter to Lemo 1 Coax or BNC are needed.
SAP ID: 0724129

Probes and probe connection
The Krautkrämer USIP|xs CV instrument is available with the probe connectors Lemo 1 Coax Socket & BNC Socket.

Lemo00 to Lemo01 or BNC
For connection of Lemo00 (standard connector of Krautkrämer USIP40) adapter probes to USIP|xs (Lemo or BNC).
SAP ID of Lemo01: 0066293
SAP ID of BNC: 0104076

Technical data		
Krautkrämer USIP|xs CV	**Essential**	**Performance**
Channels	2, 4, 8, 12 channel instrument 16, 24, 36 channel multi-instrument system	2, 4, 8 channel instrument 12, 16, 24, 32 channel multi-instrument system
Multiplexing	2, 4, 8 channel instrument: 2 parallel evaluation channels 12 channel instrument: 4 parallel evaluation channels	full parallel operation of all channels
Transmitter voltage	25 - 200 V	25 - 400 V
Transmitter pulse width	30 – 1000 ns	30 - 5000 ns
Pulse repetition frequency	max. 20 kHz	max. 20 kHz
Probe frequency	0.7 – 13 MHZ (-3 dB)	0.2 - 25 MHz (-3 dB)
Sampling rate	50 MHz, upsampled to 400MHz	100 MHz, upsampled to 400 MHz
Dynamic range	0 – 80 dB	0 - 106 dB
Gain per channel	1x main + individual gains for up to 3x gates	
TCG	1 curve per channel	
Gates per channel	5, incl. 1x interface echo gate	
Resolution of ToF	2.5 ns	
Power input	24 VDC/130 W	
Housing	19" rack mount or desk top Protective covering on request	
Protection grade	IP 54	
Temperature range	5 – 40 °C	
Probe connectors	Lemo 1, BNC	
Interfacing	• Ethernet 1 Gbit/s • D-Sub 78 Pin • Interbus Interface: 16x GPIn+Out, 64x Test Data Release, 128x Gate Event Output • ProfiNet Interface: 32x GPIn+Out, 128x Test Data Release, 1024x Gate Event Output	
UT instrument standard	EN ISO 22232-1	

Commercial offering	
Krautkrämer USIP|xs CV basic instrument packages	
Single instrument	**Essential:** 2, 4, 8 or 12 channel instrument, Lemo 1 Coax or BNC **Performance:** 2, 4, 8 channel instrument, Lemo 1 Coax or BNC 1x LAN cable, 2 m 1x power supply cable 24 V, 2 m 1x set 19" rack mounting 1x Krautkrämer USIP|xs operator GUI for installation on a customer supplied PC/laptop Operating manual Safety instructions Manufacturer's certificate
Multi-instrument systems	**Essential:** 16, 24 or 36 channel multi-instrument packages, Lemo 1 Coax or BNC **Performance:** 12, 16, 24, 32 channel multi-instrument system, Lemo 1 Coax or BNC 1x LAN cable 2 m per instrument 1x power supply cable 24 V, 2 m per instrument Optical data link cable instrument to instrument Electrical sync cable instrument to instrument 1x set 19" rack mounting per instrument 1x Krautkrämer USIP|xs operator GUI for installation on a customer supplied PC/laptop Operating manual Safety instructions Manufacturer's certificate
Probes and probe cables	
In general, USIPxs can be operated with all kind of standard and customized conventional probes. For a list of available conventional standard probes and probe cables visit www.bakerhughes.com or follow this QR code:	
Instrument certification	
EN ISO 22232-1 certificate	Certification of the instrument according to EN ISO 22232-1
Krautkrämer USIP|xs app store	
Krautkrämer USIP|xs SDK	Software development kit
Krautkrämer USIP|xs Ultraproof	Digital strip chart recorder with integrated statistics and report generator
Krautkrämer USIP|xs K-Scan	C-Scan acquisition and evaluation software

This product contains PFAS (fluoropolymers).

For more information on the location of components made with PFAS, review the product's operation and/or maintenance manual.

Este producto contiene PFAS (fluoropolímeros).

Para obtener más información sobre la ubicación de los componentes fabricados con PFAS, consulte el manual de funcionamiento y/o mantenimiento del producto.

To learn more about how we can make our platform work for your needs, reach out to our customer care team at **uttm.service@bakerhughes.com.**

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