

# Krautkrämer USM 88

Easy Inspection:  
Portable, Smart, Affordable.



**Introducing USM 88:  
Your Precision Partner in Non-Destructive Testing**

Krautkrämer USM 88 redefines portable ultrasonic flaw detection by delivering professional-grade performance at an unbeatable value. Designed for technicians who demand precision, reliability, and affordability, this compact device transforms complex inspection tasks into streamlined, efficient processes across diverse industrial applications.

# When Reliability meets Affordability

Breaking the cost barrier without compromising on quality, the USM 88 ultrasonic flaw detector offers you the performance and features of a tabletop ultrasonic detector in a small, ultra-portable handheld instrument weighing less than 2 pounds (907 grams) for maximum portability in the field.

Its ergonomic design, useful features and big performance are the result of carefully listening to the needs of the people in the field who, through their everyday practice, know best what it takes to do a good job.

## What a Field NDT Operator Needs

### An Instrument You Can Use with One Hand

The USM 88 is the ideal device for portable ultrasonic testing. It comfortably fits in the palm of your hand or pocket of coveralls for ease of use and transport. It's the perfect tool for operation in confined spaces, areas with difficult access or other difficult environments.

Actually, you operate it with one hand, thanks to the arrow-keypad, which allows for intuitive navigation and fast and precise adjustments. That comes in handy, when you need your other hand to adjust the probe or just hold on to a ladder. Are you left-handed? No problem, use the 'flip' function to adapt the instrument to your hand.

### A Robust, Heavy-Duty Device

Its molded rubber casing makes the USM 88 the sturdy instrument you need in the occasionally harsh conditions 'in the field'. It is dust and water-proof to IP67 and has been tested according to military standards.

### The Biggest and Brightest Screen in its Class

The 108mm x 64,8 mm screen (zoomed mode) with best in class 800 x 480 pixel resolution offers optimum echo-dynamics and separation.

Moreover, it is exceptionally bright so you can easily read the image even in full sunlight. On the other hand, when working in the dark, you can reduce the brightness to reduce eye fatigue and conserve battery life. An integrated stand allows you to optimize the viewing angle, when the instrument is desk or bench mounted.

### Outstanding UT Performance

Equipped with state-of-the-art technology, the USM 88 takes UT performance in handheld instruments a step further. The excellent near surface resolution enables you to detect flaws located just under the surface of the test piece with a high degree of reliability.

A wide Pulse Repetition Frequency range allows you to use the USM 88 at low PRF to inspect forged parts without any "ghost" echoes and to inspect welds at high PRF when fast scanning speed is required

### A Tool that Boosts Your Productivity

Ultra-portable, easy-to-handle, intuitive operation, high performance – the USM 88 is your plug & play tool that will give your productivity a boost the moment you start using it.



## A Wide Range of Applications

The USM 88 has been designed to provide flaw detection capability in inspection situations throughout the industrial and process spectrum, from aerospace to power generation and from the automotive sector to the oil and gas industry.

### Weld Inspection

- Trigonometric projections with curvature correction
- AWS D1.1 sizing
- DAC/TCG
- DGS
- Color Leg

### Inspection of Forgings and Castings

- Manual PRF adjustment
- DGS

### Inspection of rails

- High PRF (up to 2000 Hz)
- Lightweight 850g (1.87 lb.)
- Small size and ergonomics

### Inspection of Composites

- RF Display
- 2 gates with B-start triggered with echo in gate A
- TCG correction with high slope 120 dB/ $\mu$ s
- Reflector depth indicated in layer

### For more demanding applications

- Narrow band filters
- Low noise digital amplifier

## Other Key Features & Benefits

In the demanding world of non-destructive testing, precision, reliability, and ease of use are paramount. The USM 88 is engineered to exceed these expectations, offering a suite of advanced features that transform complex inspection tasks into streamlined, efficient processes.

### Advanced Functionality

- The USM 88 features DAC, AWS D1.1 & DGS curve functions that precisely meets the requirements of codes and standards
- Ensures compliance with the most rigorous testing requirements
- Provides unparalleled accuracy in non-destructive testing

### Productivity Features

- Automatic calibration of material sound velocity and probe delay
- Automatic display of quantitative results

### Easy-to-Use User Interface

- Customized shortcut keys for personalized workflow
- Optimized menu design for intuitive operation
- Envelope curve display for enhanced visualization

### Ergonomic Design

- Truly ambidextrous instrument, convenient for left and right-hand operation
- Compact size with large, high-resolution screen

### Rugged Performance

- Dustproof and waterproof rating up to IP67
- Passed military-grade anti-impact test (Mil-Std-810)



## Technical Specifications

Detection range	14 m (longitudinal wave steel)
Pulse mode	Spike Pulse
Pulse width	Low (30 ns) and High (100 ns)
Damping	50 or 1000 ohms
Pulse repetition rate	Continuously adjustable at 15Hz-2000Hz, step 5Hz
Gain	110dB, step length 0.2dB, 0.6dB, 1dB, 2dB, 6dB, 10dB
Bandwidth	0.5MHz to 20MHz
Filter	Broadband, 1MHz, 2MHz, 2.5MHz, 5MHz, 10MHz, 13MHz
Display	LCD, effective display size: 108mm in length, 64mm in width
Resolution	800×480
Instrument interface	Double LEMO-00
Alarm	Gate A, alarm B
Output port	Micro USB, 2GB SD card
Detection mode	Full wave, positive half wave, negative half wave, RF
Gate	Independent A, B
Measurement mode	Peak, Flank, J-Flank, and First Peak
Save format	JPEG image and continuous video file recording
Continuous recording	8 min for 50 Hz recording frequency, no limit for 10 Hz recording frequency
Quantitative mode	DAC curve, DGS curve
Dimensions	175 mm × 111 mm × 50 mm
Weight	845 grams, including the battery
Language	English, Spanish, Portugese, and Chinese
Battery	5.5 hours
Operating temperature	0°C - 55°C
Charge	Universal type AC (100 - 240V, 50 - 60Hz)
Dustproof and waterproof rating	IP67
Electromagnetic Compatibility certification	EN 55011, EN61000-6-2
International certification standard	ISO22232; ASTM E1324, E317
Vertical linearity	2%
Horizontal linearity: 0.1%	0,10%