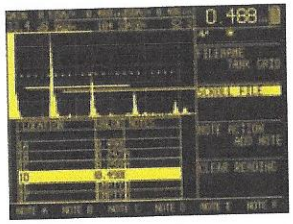
Documentation, data management more performance options

Documentation and recording

- **Store & preview** a minimum of 200 user–named data sets with A-scans for quick recall and instrument setup.
- **Alphanumeric Thickness Datalogger** for flexible, convenient storage of thickness readings in Linear, Grid, or Custom–Linear file structures with user–input filenames, location I.D.'s, notes, memo, and header fields.

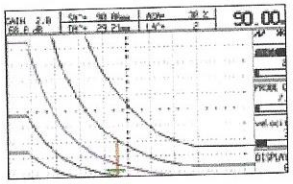


With "live" A–scan shows all important data on one screen

- **UltraDOC 4** software program for bi–directional communication with a PC for easy storage of data sets with A–scan and documentation of test results.
- **Reports with A–scans** are output directly to a variety of printers.

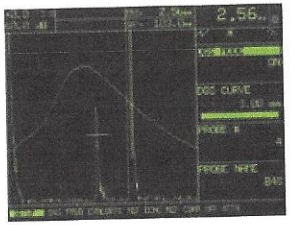
More measurement capability options

- **40 dB dynamic multiple curve DAC/ TCG Option** corrects for distance/amplitude variations from material loss and beam spread with ability to edit or insert recorded echoes individually. Up to four DAC curves can be drawn on the screen at one time to show +/- dB curves in addition to the originally recorded DAC curve. Up to 16 data points can be recorded with a maximum curve slope of 12 dB per microsecond. Meets or exceeds industry requirements for TCG.



DAC Curve with 6 dB offset multiple curves

- **IF (Interface) Gate Option** for automatic start of the display, Gate A, Gate B, and / or DAC / TCG for immersion testing applications. IF Advanced allows an advanced user to make interface offset adjustments and display the actual water path distance for immersion applications.
- **BEA (Backwall Echo Attenuator)** Option allows independent gain control of the region under Gate B for backwall echo monitoring.
- **DGS (Distance Gain Size) Option** displays a curve for a particular equivalent reflector size as a function of the distance from the probe to the reflector for 25 narrowbanded probes. The ERS (equivalent reflector size) function automatically calculates the corresponding equivalent reflector diameter in mm or in inches for any echo in the measurement gate.



- **VGA Output Option (USN 58L)** provides an easy way to connect to a PC monitor or PC projector for viewing by large audiences or training purposes.
- **RF Output Option** outputs the raw RF waveform via a standard Lemo connector for further analysis.
- **HiSPD High Speed Digital Output Option** outputs amplitude or thickness values at 20 times faster than RS232 port.

Krautkramer USN 58L & 58R

Portable Ultrasonic Flaw Detectors

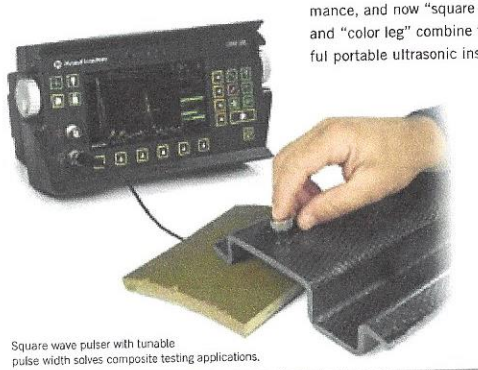
GE imagination at work

The USN 58L and 58R...
same portability & durability with more performance!

The USN 58L and 58R offer users a choice of a transreflective "color" LCD for optimum viewing in direct sunlight or a hi-brite EL display for optimum cold climate and indoor use. A 60 Hz update rate and "single shot" measurement technique produce a fast, smooth response. They replace the popular models USN 50R, 50L, 52R and 52L with improved displays, more performance, and advanced capabilities.

Fast rotary knob operation, trigonometric flaw location calculations with curvature correction, AWS D1.1 weld rating calculation and the new color leg make them ideal instruments for portable weld inspection. A 480" measurement range in steel, .25 to 25 MHz frequency capability, two independent flaw gates, 2 kHz pulse repetition frequency, and real-time analog and TTL outputs provide maximum versatility to satisfy a wide range of testing applications.

The quality, durability, dependability and ease of use that you have come to expect of Krautkramer's popular USN Series of instruments remains.



Square wave pulser with tunable pulse width solves composite testing applications.

Square Wave Pulser selectable and tunable for optimum probe matching to satisfy a wide range of tough-to-penetrate applications (USN 58L only).

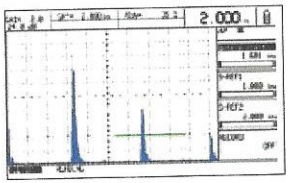
Now, either spike or "square wave pulser" is user selectable from the front panel.

- Spike pulsers are still preferred for everyday use.
- For low frequencies, square wave pulsers allow optimum probe matching by adjusting pulse width and voltage.
- Difficult to penetrate metallic applications and especially non-metals inspection like composite materials are optimized.
- Pulse width is tunable up to 1000 nanoseconds in 10 ns steps for optimum probe matching and versatility in meeting a wide range of applications.
- Pulser voltage is adjustable from 50 to 450 V in 10 V steps.

The pulser width and voltage can be easily optimized to match the probe for best performance.

Rugged USN durability, fast rotary knob operation, outstanding ultrasonic performance, and now "square wave pulser" and "color leg" combine to form a powerful portable ultrasonic inspection tool.

- **"Spin and Set"** operation with fast rotary knob adjustments; gain is always directly accessible with the left–hand rotary knob and lockable.
- **Auto CAL** makes calibration fast & easy.



- **65 selectable material velocities** at the user's fingertips.
- **.040" to 480" (1 to 12,192 mm)** range in steel covers thin to lengthy acoustically clean materials.
- **2 independent gates** monitor amplitude and sound path distance for both flaw detection and thickness measurement applications.
- **250 KHz to 25 MHz capability** with 10 selectable frequency ranges to match probe for optimum performance.
- **Exclusive Smartview** function displays the most important information (relevant shot) for critical scanning tests.
- **Three Variable Persistence Modes (USN 58L)** are selectable in Freeze Envelope to visually assist flaw detection & evaluation for scanning and moving part inspections.
- **Real time (single shot) analog and TTL outputs** handle a wide range of systems applications.
- **15 to 2000 Hz** pulse repetition frequency with AutoLOW and AutoHIGH settings, Manual adjustment in 5 Hz increments, and external trigger (spike mode only).

Your choice...58L for optimum visibility in direct sunlight or the 58R for optimum indoor visibility and cold outdoor use

USN 58L with color transflective LCD display! Vibrant Colors in Bright Sunlight

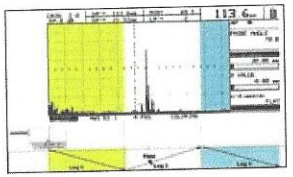
- **Optimum visibility** in direct sunlight.
- **400 x 240 pixels** - 4 color schemes and 8 A-Scan colors to match lighting conditions.
- **Backlite key** on front panel for indoor use.

USN 58R with hi-brite EL display! Crisp, Clear EL Display

- **Easy to read** from any position or angle.
- **Choose reverse video** mode for outdoor use or to relieve boredom & eye fatigue.
- **Operates down to -20°C / -4°F**
- **Select low or high intensity** to match lighting conditions.

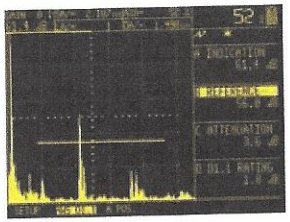
Digital Advantages

- **Trigonometric Flaw Location Function** with curvature correction automatically calculates depth, surface distance, and sound path to flaw along with the Color Leg (USN 58L only) of the inspection when using angle beam probes.
- **Color Leg** (patent pending) allows easy identification of leg and skip distances for weld inspection.

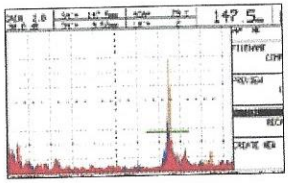


New "Color Leg" indicator displays the legs of the angle beam inspection in different colors

- **GRID** dynamically changes bands of display background colors for each leg.
- **A-Scan** dynamically changes the color for each leg of the "live" A-Scan.
- **Weld Rating Calculation** simplifies the rating of weld indications according to AWS Specification D1.1. (inch or mm) (Formula D = A – B – C).



- **Four digital display boxes** along with a large display box simultaneously display the most important test information along with the A–scan waveform.
- **Behind–the–Freeze** mode allows dynamic time base adjustments on frozen echoes.
- **Gate Magnify key** expands the selected gate to full screen width for detailed indication evaluation.
- **On–screen Help** Text readily accessed by pressing a dedicated key on front panel.
- **Freeze Modes for all applications:** ALL, Peak Std, Compare, Envelope, Envelope Peak for optimum waveform evaluation and comparison.



Freeze compare in different colors (USN 58L)

- **dB Step key with 6 settings** including a user specified gain setting for fast, easy gain adjustments.
- **Lock Key (USN 58L)** and lock in the dB step menu locks. Both rotary knobs can easily be locked to prevent inadvertent changes.
- **dB REF Key** evaluates subsequent echoes gain value and amplitude against the highest echo in Gate A (reference echo) when activated.
- **Zoom key** expands the A–scan across the entire screen for a close–up view of the echo dynamics.