

Krautkramer USN 60

Portable Ultrasonic Flaw Detector

Base Instrument Package

Portable Ultrasonic Flaw Detector with Hi-Resolution Color LCD Display
Li-437 Lithium Ion "on-board" rechargeable battery pack
LiBC-419 Lithium Ion Battery charger / AC power supply
LCD-139 Clear, field replaceable LCD Screen Overlays (pkg. 10)
OP-163 Operating Manual
Certificate of Conformity
Laminated Menu Structure Card
Firmware Upgrade CD-rom (requires PCCBL-841)

Accessories

SCC-071 Soft Carry Case with padded adjustable shoulder strap and light shield
SAP-112 Soft Accessory Pouch, detachable, for use with soft carry case
UDFW UltraDOC 4 Documentation Software
PCCBL-841 9 pin Serial PC Cable
PRTCBL-518 Serial Printer Cable
PRTCBL-842 Parallel Printer Cable
I/O-398 Real time I/O Cable (DB15 termination at instrument at only)
EAA-008 External Audible Alarm
MS-464 Master/Slave Interconnect Cable
REM-514 Remote Copy Hand Switch
FS-951 Remote Copy Foot Switch
LCC-315 Heavy-Duty, Lockable Transport Case

Specifications

Range

0.040" to 1100" (1 mm to 28 m) at steel velocity; range selectable in fixed steps or continuously variable

Material Velocity

Continuously adjustable from .0098 to .6299 inches/ μ s (250 to 16,000 m/s); 65 selectable material velocities

Display Delay

-20 to 3498 μ s in steel (dependent on range)

Probe Delay/Zero Offset

0 to 999.9 μ s

Damping

50, 75, 150, 500 ohms

Gain

0 to 110 dB adjustable in selectable steps 0.1, 0.5, 1.0, 2.0, 6.0, user definable, and locked

Test Modes

Pulse echo, dual, and thru-transmission

Pulser

Square wave excitation pulse

Pulse Voltage

(Square wave pulser mode)

50 to 450 V scrollable in 10 V adjustments

Pulse Width

(Square wave pulser mode)

Tunable from 50 to 1000 ns in 10 ns adjustments

Pulse Energy (Spike mode)

Low, High

Pulse Repetition Frequency

Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) and 15 to 2000 Hz in square wave mode, in 5 Hz increments, external trigger (spike mode only)

Bandwidth (amplifier bandpass)

0.25 to 25 MHz with 10 selectable settings including broadband

Gate Monitors

Two independent flaw gates controllable over entire sweep range

Measurement Modes

Zero-to-first, multi-echo with selectable flank or peak detection

Rectification

Positive halfwave, negative halfwave, fullwave, RF

Reject (suppression)

0 to 80% linear

Units

Inch, millimeter, or microsecond selectable

Operating Temperature

0 to 55 °C (32 to 130 °F); -25 to 70 °C (-13 to 158 °F) storable

Languages

Selectable English, German, French, Spanish, Italian, Portuguese, Dutch, Finnish, Norwegian, Swedish, Danish, Romanian, Czech, Slovakian

Probe Connectors

BNC or Lemo selectable at order

Keypad

International symbols

Battery Power

Lithium Ion Battery Pack; 6 D-size NiMH (9.0 Ah); NiCad or alkaline cells substitutable

Battery Life

8 hours on Li-Ion Battery Pack

Size

11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)

Weight

6.6 lbs. (3.0 kg) Li-Ion Battery; 3.5 lbs. (1.6 kg) without battery

Color Leg

Easy identification of leg and skip distances for angle beam inspection in A-scan or grid background colors

Weld Rating Calculation

Simplifies the rating of weld indications according to AWS specification D1.1, (formula $D=A-B-C$)

Warranty

2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification



Outputs

TTL Go/NoGo

Three independently assignable outputs; instantaneous, timed, latched with visual LED and audible horn alarms

Analog

Four independently assignable outputs
Amplitude
0 to 100% full screen height corresponds to 0 to 2.5V Thickness (TOF)
0V corresponds to the value on the left side of the screen or display delay; 2.5V corresponds to the value on the right side of the screen or range

I/O Port

Bi-directional RS232, baud rate selectable up to 115, 200, direct reports to various printers

Color LCD Display

Display

5.25" x 3.875" (133 x 98 mm), 640 x 480 pixels VGA, color, active matrix LCD with CCFL backlight; brightness control; 4 selectable color schemes; 8 selectable A-scan colors

A-scan Size

440 x 401 pixels in normal mode, 440 x 201 pixels in ½ screen mode

A-scan Update Rate

60 Hz, single shot

A-scan Waveform Selections

Hollow, filled, smart hollow, smart filled

A-scan Enhance Modes

Sparkle, baseline, sparkle plus baseline break

Dedicated Key Function

Test

Displays the test menu, coarse range markers, then display delay & range under the A-scan upon successive key presses

Home

Returns instrument to main menu

Question Mark

Displays help text for the four active parameters along right side of display

Freeze

Freezes the displayed A-scan image according to the setting for the freeze mode in the configuration menu (all, peak std., compare, envelope with selectable persistence)

Copy

Sends information to the on-board datalogger or I/O port

Data Storage and Documentation

Memory

Minimum 200 data sets store all instrument operating parameters plus A-scan; stored data sets can be easily previewed and recalled for quick, repeatable instrument setup

Memory Retention

2 years

Alphanumeric Thickness Datalogger

Up to 99,999 thickness readings with up to 7 user defined notes per reading (16-character) can be stored in three flexible, powerful file structures. 14-character file names with easy file navigation and viewing of both the A-Scan and thickness data provided by ½ screen testing mode. Thickness readings can be stored, viewed, cleared, or output directly to a printer

Thickness File Structures

Linear (sequential), Grid (702 x 702), Custom-Linear with auto label capability

Alphanumeric Input

Quick & easy using two rotary knobs

Inspection Memo, Notes, Header

User definable memo (up to 252 character), header (nine 26-character lines), and 7 (16-character) thickness reading notes for further document inspection conditions on a per file basis

File Preview

Scroll to preview stored A-scan and file header fields to easily select the proper file for recall

Options

DAC / TCG Option

Multiple Curve DAC (Distance Amplitude Curve)/TCG (Time Corrected Gain) for echo amplitude adjustment and evaluation, 40 dB dynamic range, 12 dB/μs slope, record up to 16 points, recorded points are individually editable, new points can be inserted. Display four additional curves based upon dB offset feature from originally recorded DAC curve. TCG attenuation and transfer correction features enable use on other materials and surface conditions

IF (Interface) Gate Option

For automatic start of the display, Gate A, Gate B, and / or DAC / TCG for immersion testing applications

DGS 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 inches for any echo in the measurement gate

BEA Backwall Echo Attenuator Option

Allows independent gain control of the region under Gate B for backwall echo monitoring

VGA Output Option *

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 #00 connector for further analysis

HiSPD High Speed Digital Output Option

Outputs amplitude or thickness values 20 times faster than RS 232 port

* These option has to be ordered at the same time with the instrument. It is not possible to upgrade the instrument later.