

# Krautkramer USN 60/60L

# Portable Ultrasonic Flaw Detectors

BHGE Inspection Technologies has optimized its USN 60 series for use in direct sunlight and operation at extreme temperatures. These new characteristics make the instruments ideally suited for outdoor use with its increased long battery operation time.

Depending on the applications challenges, you have the choice between the USN 60 and the USN 60L version.



#### The USN 60 series:

# Outstanding Ultrasonic Performance

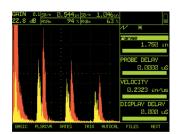
The combination of the rugged USN durability, 11 hours of battery operation, fast rotary knob operation, outstanding ultrasonic performance, and the "square wave pulser" form a powerful portable ultrasonic inspection tool.



## Optimized outdoor use design

The USN 60 / USN60L flaw detectors are especially designed to be used outdoors:

- Extreme temperature use (-20°C to +55°C /-4°F to 130°F)
- · Easy to view in direct sunlight
- 11 hours battery operation



#### Vibrant colors

- Hi-resolution color LCD display produces "Analog Look and Performance" echo dynamics.
- 4 selectable vibrant display color schemes to match lighting conditions.
- Gates and gate functions are color coded for easy identification and fast adjustment.

### User preferred features

- Simple 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.
- 15 Hz to 6 kHz (spike mode) PRF and 15 Hz to 2 kHz (square mode) PRF (pulse repetition frequency).
- 2 independent gates monitor amplitude and soundpath distance for both flaw detection and thickness measurement applications.
- 250 KHz to 25 MHz frequency range.
- RF display mode enhances signal evaluation and bond inspection of dissimilar materials.
- 4 selectable damping settings (50, 75, 150, 500 ohms) for optimum probe performance.
- 1 mm to 28 m (0.040" to 1100") range (in steel) covers thin to lengthy acoustically clean materials.

- dB REF key evaluates subsequent echoes gain value and amplitude against the highest echo in Gate A (reference echo) when activated.
- IF (Interface) Gate Option for automatic start of the display, Gate A, Gate B, and / or DAC / TCG for immersion testing applications.
- 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 connector for further analysis.
- BEA (Backwall Echo Attenuator) Option allows independent gain control of the region under Gate B for backwall echo monitoring.
- 19" Rack Mount Model.

# Wide range of applications

A 6 kHz pulse repetition frequency, real-time analog and TTL outputs makes the USN 60 flaw detectors series ideal for a wide range of automated systems testing applications. The exclusive SmartView feature displays even the shortest echoes for critical scanning and rotating part inspections.

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

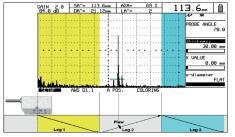
resolution thin measurements, long acoustically clean materials, and immersion systems, the USN 60 flaw detector family extends the range of applications that a portable instrument can perform. Furthermore the selectable 450V Square Wave Pulser satisfies a wide range of tough-to-penetrate applications, such as difficult to penetrate metallic applications and especially non-metals inspection like composite materials.



#### Tools for easy weld inspection

- Color Leg allows easy identification of leg and skip distances for weld inspection.
  - GRID mode dynamically changes bands of display background colors for each leg.
  - A-SCAN mode 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. (Formula D = A B C).
- Trigonometric flaw location function with curvature correction automatically calculates depth, surface distance, and sound path to flaw along with the leg of the inspection when using angle beam probes. All TOF measurements can be displayed in mm, inches or µs.
- SmartView function along with variable persistence freeze modes displays the most important information (relevant shot) for a test.
- Real time (single shot) analog and TTL outputs handle a wide range of automated systems applications.
- Choose from Four Freeze Modes: ALL, Peak Std, Compare or Envelope for optimum waveform evaluation and comparison.
- Three Variable Persistence Modes are selectable in Freeze Envelope to visually assist flaw detection & evaluation for scanning and moving part inspections.
- Compare frozen reference wave-forms to live A-Scans in different colors to easily interpret test results.

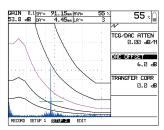




"Color Leg" indicator displays the legs of the angle beam inspection in different colors

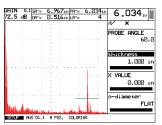
# Tools for easy defect sizing

 40 dB dynamic 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.



Tools for easy defect sizing Multiple curve DAC shows recorded DAC curve in magenta with 4 additional curves based upon dB Offset feature for added flaw sizing assistance. TCG Attenuation and Transfer Correction features make it very versatile for use on other materials and surface conditions.

 DGS (Distance Gain Size) Option displays a curve for a particular equivalent reflector size. The ERS (Equivalent reflector size) function automatically calculates the corresponding equivalent reflector diameter in mm or inches for any echo in the measurement gate.



Four digital reading boxes at top display trigonometric calculations for weld inspection.

(SA soundpath to flaw in gate A, PA projection distance to flaw in gate A, DA depth to flaw in Gate A & LA leg of inspection that flaw occurs in gate A)

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

#### **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**

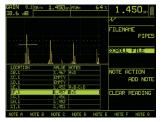
Outputs amplitude or thickness values 20 times faster than RS 232 port.

# Documentation and recording

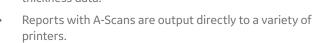
- Store & preview a minimum of 200 user-named data sets with A-Scans for quick recall and instrument setup.
- UltraDOC 4 software program for bi-directional

communication with a PC for easy storage of data sets with A-scan and documentation of test results.

UltraMATE™ software program simplifies the transfer, storage, analysis, and documentation of thickness data.



printers.







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, & header fields.

Range USN 60 Range USN 60L Range USN 60L Range State S	Technical Specifications USN 60/USN 60L	
Material Velocity         Continuously adjustable from 0.0098 to 0.6299 inches/μs (250 to 16,000 m/s); 65 selectable material velocities           Display Delay         -20 to 3498 μs in steel (dependent on range)           Probe Delay/Zero Offset         0 to 999.9 μs           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 Repetition Frequency USN 60         Low, High           Pulse Repetition Frequency USN 600         Low, High           Pulse Repetition Frequency USN 601         Limited to 2000 Hz in both spike and square wave mode, in 5 Hz increments, external trigger (spike mode only)           Pulse Repetition Frequency USN 601.         Limited to 2000 Hz in both spike and square wave mode           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           Recification         Positive halfwave, negative halfwave, fullwave, RF           Reje	Range USN 60	, , ,
Display Delay Probe Delay/Zero Offset Oto 999.9 µS Oto 150, 50, 150, 500 ohms Oto 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 Pulse Voltage (Square wave pulser mode) Pulse Width (Square wave pulser mode) Pulse Repetition Frequency USN 60 Bandwidth (amplifier bandpass) Gate Monitors  Measurement Modes Restification Rectification Positive halfwave, negative halfwave, fullwave, RF Reject (suppression) Units Inch, millimeter, or microsecond selectable Operating -20° to 55°C (-4° to 130°F); Temperature -25° to 70°C (-13° to 158°F) Storable Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian Battery Power Battery Life 11 hours on Li-lon battery pack; NiMH, NiCad or alkaline called in Aws per lEC 529 specification for IP54 classification Dust Proof/DrippingWater Proof Dust Proof DrippingWater Proof Off StrippingWater Proof	Range USN 60L	range is 0.040" to 480" (1 mm to 12 m)
Probe Delay/Zero Offset  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 Pulse Voltage (Square wave excitation pulse Pulse Width (Square wave pulser mode) Pulse Width (Square wave pulser mode) Pulse Benergy (Spike mode) Pulse Repetition Frequency USN 60  Pulse Repetition Frequency USN 60L Bandwidth (amplifier bandpass) Gate Monitors  Measurement Modes  Acto 1000 Hz (spike mode)  Measurement Modes  Acto 25 MHz with 10 selectable settings including broadband  Two independent flaw gates controllable over entire sweep range  Actor-to-first, multi-echo with selectable flank or peak detection  Rectification Positive halfwave, negative halfwave, fullwave, RF Reject (suppression)  O to 80% linear  Units  Languages  Portuguese, Norwegian, Swedish, Finnish, Danish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  BNC or Lemo selectable at order  Keypad  International symbols  Battery Dower  Battery Life  11 hours on Li-lon battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-lon 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  As per IEC 529 specification for IP54 classification	Material Velocity	
Offset Damping Damping Do 10 110 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 Pulse Voltage (Square wave excitation pulse Pulse Width (Square wave pulser mode) Pulse Width (Square wave pulser mode) Pulse Repetition Frequency USN 60 Pulse Repetition Frequency USN 60  Itimited to 2000 Hz in 50 to 300 Hz in square wave mode, in 5 Hz increments, external trigger (spike mode only)  Itimited to 2000 Hz in both spike and square wave mode, in 5 Hz increments, external trigger (spike mode only)  Two independent flaw gates controllable over entire sweep range  Measurement Modes  Rectification Positive halfwave, negative halfwave, fullwave, RF Reject (suppression)  Oto 80% linear  Units Inch, millimeter, or microsecond selectable flank or peak detection  Probe (suppression)  Oto 80% linear  Units Inch, millimeter, or microsecond selectable  Operating -20° to 55°C (-4° to 130°F); Temperature -20	Display Delay	-20 to 3498 μs in steel (dependent on range)
Gain 0 to 110 dB adjustable in selectable steps 0.1, 0.5, 1.0, 2.0, 6.0, user definable, and locked  Pulse echo, dual, and thru-transmission  Pulser Square wave excitation pulse  Pulse Voltage (Square wave pulser mode)  Pulse Width (Square wave pulser mode)  Pulse Energy (Spike mode)  Pulse Energy (Spike mode)  Pulse Repetition Frequency USN 60  Pulse Repetition Frequency USN 60L  Bandwidth (amplifier bandpass)  Gate Monitors  Restification  Positive halfwave, negative halfwave, fullwave, RF  Reject (suppression)  Units  Units  Units  Units  Units  Units  Inch, millimeter, or microsecond selectable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  BNC or Lemo selectable at order  Keypad  International symbols  Battery Power  Lithium Ion battery pack, NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-lon battery pack Size  11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)  6.6 lbs. (3.0 kg) Li-lon battery; 3.5 lbs. (1.6 kg) without battery  Color Leg  Easy identification of IP54 classification  Dust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification		0 to 999.9 μs
Test Modes Pulse echo, dual, and thru-transmission Pulser Square wave excitation pulse Pulse Voltage (Square wave pulser mode) Pulse Width (Square wave bulser mode) Pulse Experition Frequency USN 60 Pulse Repetition Frequency USN 60 Bandwidth Gamplifier bandpass) Gate Monitors  Measurement Modes Rectification Positive halfwave, negative halfwave, fullwave, RF Operating Operating Operating Capo to SpSC (-4° to 130°F); Temperature  Zes' to 70°C (-13° to 158° F) storable Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian Probe Connectors BNC or Lemo selectable at order Keypad International symbols Battery Power Nimity McCad or alkaline cells substitutable Battery Life 11 hours on Li-lon battery pack Nimit, NiCad or alkaline cells substitutable Battery Life 11 hours on Li-lon 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 Capo HEC S29 specification for IP54 classification  As per IEC 529 specification for IP54 classification	Damping	
Pulse Voltage (Square wave excitation pulse  Pulse Voltage (Square wave pulser mode)  Pulse Width (Square wave pulser mode)  Pulse Energy (Spike mode)  Pulse Repetition Frequency USN 60  Pulse Repetition Frequency USN 60.  Bandwidth (amplifier bandpass)  Gate Monitors  Measurement Modes  Rectification Positive halfwave, negative halfwave, fullwave, RF  Reject (suppression)  Oto 80% linear  Units  Operating  -20° to 55°C (-4° to 130°F);  Temperature  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  Retypad  Battery Power  Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-Ion battery; 3.5 lbs.(1.6 kg) without battery  Easy identification of IP54 classification  Dust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification	Gain	
Pulse Voltage (Square wave pulser mode) Pulse Width (Square wave pulser mode) Pulse Energy (Spike mode) Pulse Repetition Frequency USN 600 Bandwidth (amplifier bandpass) Gate Monitors  Measurement Modes Rectification Rectification Reject (suppression) Units Operating Portuguese, Norwegian, Swedish, Finnish, Danish, Utch, Russian, Czech, Romanian, Slovakian Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian Probe Connectors Battery Power Lithium Ion battery pack; NifMH, NiCad or alkaline cells substitutable Battery Life Lithium Ion battery pack Size Lithy Norwell All Syspectication of Ip54 classification Dust Proof/DrippingWater Proof  Dust Proof/DrippingWater Proof  As per IEC 529 specification for IP54 classification		
Pulse Width (Square wave pulser mode) Pulse Energy (Spike mode)  Pulse Repetition Frequency USN 600  Pulse Repetition Frequency USN 601  Bandwidth (amplifier bandpass) Gate Monitors  Rectification Rectification Positive halfwave, negative halfwave, fullwave, RF Reject (suppression) Units  Inch, millimeter, or microsecond selectable Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian Probe Connectors  Battery Power  Battery Power  Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable Battery Life  11 hours on Li-lon battery pack Size  11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)  Color Leg  Easy identification Dust Proof/ DrippingWater Proof  At loow, High  Low, High  Low, High  Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode)  Low, High  Low, High  Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolow, autohigh, manually adjustable from 15 to 6000 Hz (spike mode) Autolom, autohi		Square wave excitation pulse
Pulse Energy (Spike mode)  Pulse Repetition Frequency USN 60  Pulse Repetition Frequency USN 60L  Bandwidth (amplifier bandpass)  Gate Monitors  Measurement Modes  Rectification  Reject (suppression)  Units  Units  Units  Units  Deperating  -20° to 55°C (-4° to 130°F);  Temperature  -25° to 70°C (-13° to 158°F) storable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  Battery Power  Battery Life  11 hours on Li-lon battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-lon battery; 3.5 lbs.(1.6 kg) without battery  Color Leg  Easy identification D.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year cortinged for recertification  Dust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification  India 15 to 2000 Hz in 50 to 2000 Hz in square wave mode parts and square wave mode pins frequency using square wave mode, in 5 Hz in square wave mode decendancy in square wave		50 to 450 V scrollable in 10 V adjustments
Cow, Fign   Cow,	the state of the s	Tunable from 50 to 1000 ns in 10 ns adjustments
Pulse Repetition Frequency USN 60  Pulse Repetition Frequency USN 60L  Bandwidth (amplifier bandpass)  Gate Monitors  Measurement Modes  Rectification Positive halfwave, negative halfwave, fullwave, RF Reject (suppression)  Units  Inch, millimeter, or microsecond selectable Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  Battery Power  Battery Life  11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)  Keight  Color Leg  Easy identification of leg and skip distances for angle beam inspection in Lor (AWS specification) Dust Proof/ DrippingWater Proof  Pulse Repetition Imited to 2000 Hz in square wave mode in 5 Hz increments, external trigger (spike mode only)  Limited to 2000 Hz in so 2000 Hz in square wave mode, in 5 Hz increments, external trigger (spike mode only)  Limited to 2000 Hz in both spike and square wave mode in 5 Hz increments, external trigger (spike mode only)  Limited to 2000 Hz in both spike and square wave mode  Imited to 2000 Hz in both spike and square wave mode  Imited to 2000 Hz in both spike and square wave mode  Imited to 2000 Hz in both spike and square wave mode  Imited to 2000 Hz in both spike and square wave mode  Imited to 2000 Hz in both spike and square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square sortings including  Imited to 2000 the square square  Imited to 2000 Hz in both square wave mode  Imited to 2000 Hz in both square square  Imited to 2000 Hz in		Low, High
Erequency USN 60L  Bandwidth (amplifier bandpass)  Gate Monitors  Measurement Modes  Rectification  Positive halfwave, negative halfwave, fullwave, RF  Reject (suppression)  Units  Inch, millimeter, or microsecond selectable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  BNC or Lemo selectable at order  Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-lon 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  Lust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification		Hz (spike mode) and 15 to 2000 Hz in square wave mode,
(amplifier bandpass)broadbandGate MonitorsTwo independent flaw gates controllable over entire sweep rangeMeasurement ModesZero-to-first, multi-echo with selectable flank or peak detectionRectificationPositive halfwave, negative halfwave, fullwave, RFReject (suppression)0 to 80% linearUnitsInch, millimeter, or microsecond selectableOperating-20° to 55°C (-4° to 130°F);Temperature-25° to 70°C (-13° to 158°F) storableSelectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, SlovakianProbe ConnectorsBNC or Lemo selectable at orderKeypadInternational symbolsBattery PowerLithium lon battery pack; NiMH, NiCad or alkaline cells substitutableBattery Life11 hours on Li-lon battery packSize11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)Weight6.6 lbs. (3.0 kg) Li-lon battery; 3.5 lbs.(1.6 kg) without batteryColor LegEasy identification of leg and skip distances for angle beam inspection in A-scan or grid background colorsWeld RatingSimplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)Vearconditional warranty on parts and labor; free 2nd year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertificationDust Proof/DrippingWater ProofAs per IEC 529 specification for IP54 classification		Limited to 2000 Hz in both spike and square wave mode
Gate Monitorssweep rangeMeasurement ModesZero-to-first, multi-echo with selectable flank or peak detectionRectificationPositive halfwave, negative halfwave, fullwave, RFReject (suppression)0 to 80% linearUnitsInch, millimeter, or microsecond selectableOperating-20° to 55°C (-4° to 130°F);Temperature-25° to 70°C (-13° to 158°F) storableSelectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, SlovakianProbe ConnectorsBNC or Lemo selectable at orderKeypadInternational symbolsLithium Ion battery pack; NiMH, NiCad or alkaline cells substitutableBattery Life11 hours on Li-Ion battery packSize11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)Weight6.6 lbs. (3.0 kg) Li-Ion battery; 3.5 lbs. (1.6 kg) without batteryColor LegEasy identification of leg and skip distances for angle beam inspection in A-scan or grid background colorsWeld RatingSimplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)Warranty2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertificationDust Proof/DrippingWater ProofAs per IEC 529 specification for IP54 classification		
Rectification Positive halfwave, negative halfwave, fullwave, RF Reject (suppression) 0 to 80% linear  Units Inch, millimeter, or microsecond selectable  Operating -20° to 55°C (-4° to 130°F); Temperature -25° to 70°C (-13° to 158°F) storable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors BNC or Lemo selectable at order  Keypad International symbols  Battery Power Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life 11 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 Simplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof	Gate Monitors	
Reject (suppression)  Units  Units  Inch, millimeter, or microsecond selectable  Operating  -20° to 55°C (-4° to 130°F);  Temperature  -25° to 70°C (-13° to 158°F) storable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  BNC or Lemo selectable at order  Keypad  International symbols  Battery Power  Bithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-Ion battery pack  Size  11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)  G.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  Calculation  Calculation  Aws specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof	Measurement Modes	
Units Inch, millimeter, or microsecond selectable  Operating	Rectification	Positive halfwave, negative halfwave, fullwave, RF
Operating Temperature  -20° to 55°C (-4° to 130°F); Temperature  -25° to 70°C (-13° to 158°F) storable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  BNC or Lemo selectable at order  Keypad  International symbols  Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-Ion battery pack  Size  11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)  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)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof	Reject (suppression)	
Temperature  -25° to 70°C (-13° to 158 ° F ) storable  Selectable English, German, French, Spanish, Italian, Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors  BNC or Lemo selectable at order  Keypad  International symbols  Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-Ion battery pack  Size  11.1" W x 6.75" H x 6.25" D (282 x 171 x 159 mm)  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 Calculation  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof	Units	
Languages Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch, Russian, Czech, Romanian, Slovakian  Probe Connectors BNC or Lemo selectable at order  Keypad International symbols  Battery Power Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life 11 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 Simplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof		
Reypad International symbols  Battery Power Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life 11 hours on Li-Ion battery pack  Size 11.1" W × 6.75" H × 6.25" D (282 × 171 × 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 Simplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/DrippingWater Proof	Languages	Portuguese, Norwegian, Swedish, Finnish, Danish, Dutch,
Battery Power Lithium Ion battery pack; NiMH, NiCad or alkaline cells substitutable  Battery Life 11 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 Simplifies the rating of weld indications according Calculation to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof	Probe Connectors	BNC or Lemo selectable at order
Battery Power  NiMH, NiCad or alkaline cells substitutable  Battery Life  11 hours on Li-lon 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-lon 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  Simplifies the rating of weld indications according  Calculation  to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof	Keypad	International symbols
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 Simplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/DrippingWater Proof	Battery Power	NiMH, NiCad or alkaline cells substitutable
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)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification	Battery Life	
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) 2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof As per IEC 529 specification for IP54 classification	Size	
Weld Rating Calculation  Simplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof  beam inspection in A-scan or grid background colors  Local Simplifies the rating of weld indications according to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  As per IEC 529 specification for IP54 classification	Weight	battery
Calculation to AWS specification D1.1, (formula D=A-B-C)  2 year conditional warranty on parts and labor; free 2nd year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification	Color Leg	
Warranty year contingent upon return of unit within 13 months of purchase for recertification  Dust Proof/ DrippingWater Proof  As per IEC 529 specification for IP54 classification	•	
DrippingWater Proof  As per IEC 529 specification for IP54 classification	Warranty	year contingent upon return of unit within 13 months of
Compliance EMC/EMI: EN 55011:2007, EN 61000-6-2:2005		As per IEC 529 specification for IP54 classification
	Compliance	EMC/EMI: EN 55011:2007, EN 61000-6-2:2005

# bhge.com

© 2017 Baker Hughes, a GE company, LLC - All rights reserved.

BHGE reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation. Contact your BHGE representative for the most current information. The BHGE logo is a trademark of Baker Hughes, a GE company, LLC. Baker Hughes, a GE company, and the GE monogram are trademarks of the General Electric Company and Baker Hughes, a GE company, LLC.

GFA33472 10/2017 GEIT-20040EN