

DMS Go+

The ultra-portable,
ultra-powerful
thickness gauge.



Featuring intuitive, easy-to-use arrow-keypad control, powerful data management and the latest industrial electronics to provide accurate, reliable and comprehensive thickness inspection data. The DMS Go+ thickness gauge that can be easily converted into a comprehensive flaw detector with a simple software upgrade.



DMS Go+

Designed and developed with the user in mind

Operational excellence

The DMS Go+ offers a comprehensive, hand-held solution to thickness measurement, data recording and data management in a wide range of applications and environments.



→ High performance thickness measurement

- Zero cross measurement technique for high measurement stability and reliability
- Automatic gain control for excellent repeatability and corrosion monitoring.
- Built-in temperature compensation for accurate measurement up to 540°C (1000°F)
- Multiple calibration and zeroing modes for repeatable accuracy.
- Multiple measurement modes, including thickness, A-scan, B-scan, Min/max and differential.

→ High capacity data recorder and compatibility with powerful data management systems

- On-board data recorder, with capacity of hundreds of thousands of thickness readings, with storage of A-scan, B-scan and MicroGrid attachments
- Data can be organized in pre-set, custom or advanced file structures.
- Data transfer is by SD card or via USB port to PC. Data can be transferred in various file formats to allow easy integration with user data management systems.
- Compatible with UltraMate and UltraMate Lite data management programs to allow for comprehensive data analysis and documentation.

→ Ease of use

- Intuitive arrow-keypad for positive digital control of parameters
- One hand operation and one-hand, menu-directed calibration process
- A "Flip" function allows use by both left-handed and right-handed operatives.
- A large, 800x480 pixel, display screen, ergonomically sized to reduce eye-strain, which can be adjusted to provide optimum visibility in various ambient light conditions.
- Small size, lightweight (870g, 1.9lb), robust construction to IP67 for operation in harsh environments.
- Battery allows up to 10 hours operation and can be re-charged on- or off-board.



A wide range of applications

The DMS Go+ is suitable for thickness measurement in a wide variety of applications throughout the industrial and process spectrum. It is especially applicable for corrosion measurement and monitoring, even on coated components and structures and at high temperatures.

Typical applications include:

Oil & Gas

- Inspection and monitoring of corrosion in tubes, vessels and tanks
- Measurement of remaining wall thickness through paint coatings

Power Generation

- Inspection of complex geometry tubes
- Monitoring of boiler efficiency by measuring oxide scale in boiler tubes with special probe OSS-10

Aerospace

- Maintenance checks

Metals Industry

- Thickness measurement of austenitic materials

Optional applications software such as TopCOAT technology, also allows measurement of coating thickness as well as metal thickness, while Auto-V measurement enables thickness to be measured on components with unknown sound velocities, without the need for a calibration block.

A simple software upgrade adds a comprehensive and versatile flaw detector to the DMS Go+

The DMS Go+ uses the same operating platform and hardware as the state-of-the-art USM Go+ portable flaw detector. This offers high Near Surface Resolution to detect flaws near to the surface, as well as a wide Pulse Repetition Frequency range, allowing it to be used for inspecting forged parts as well as welds.

An up-graded DMS Go+ means that personnel now need to carry only one instrument to perform accurate and reliable thickness measurement and flaw detection.



Technical Specifications of DSM Go+

Display	5 inch, 800 x 480 pixels, 108 x 65 mm (W x H), >200 cd/m ²
Size (W x H x D)	175 x 111 x 50 mm (W x H x D)
Weight	850 g with battery
Protection class	IP 67
Operating temperature	0 – 55 °C
Battery	Li-Ion, rechargeable, > 8 hours operation time
Power adapter / charger	100 – 240 V AC, 50/60 Hz
Probe connector	Dual Lemo-00 (T/R)
PC interface	Micro USB
Memory card	SD-Card 16 GB max
Daterecorder	100.000 readings per file. Multiple files can be stored on SD card 8 file formats, Attachment of A-Scan, B-Scan and micro grid
Pulser	120 – 250 V, Spike wave, Automatically matched to probe
Puls Repetition Frequency	4, 8 or 16 Hz selectable
Receiver	110 dB dynamic, automatic gain control, Manual -high, -low, -auto
Measurement range	0,4 – 14.000 m/s (0.01 – 551 ")
Units	mm, inch, µs
Digital Display resolution	0,01 mm or 0,1 mm (0.001" or 0.01") selectable
Measurement techniques	Zero crossing, IP to 1st echo, multi echo, TopCoat, Auto-V
Calibration	One-point, Two-point Auto or Manual On-block and Off-block Zero Automatic V-Path correction
Display mode	Thickness and A-Scan, Temperature corrected thickness, B-Scan, Min/Max capture, Differential
Compliance	EN 61010, EN 61326-1, EN 12668 ASTM E 1324, E317, ANSI/NCSL Z 540-1-1994 MIL-STD 45662A, MIL-STD 2154, EN 15317



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GEIT-20219EN (06/14)

GE
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The DM5E Family of Corrosion Thickness Gauges

A Range of High Performance, Reliable and
Easy-to-Use Instruments



The DM5E family allows you to choose the functionality to suit you at a price to suit you.



GE imagination at work



New Range of High Performance Probes

A new set of ultrasonic probes has been developed for the DM5E family to provide the instruments with optimized performance, even at very high temperatures. The DA5xx series includes a 5 MHz standard probe for general purpose applications, a 2MHz version, for high penetration as well as a 7.5MHz fingertip probe. A newly developed 5MHz high temperature probe offers an operating range from -10°C up to +204°C. (Standard probes operate to 70°C)

Thickness Measurement Under Coating

Both the DM5E and the DM5E DL offer Dual Multi Measurement. Virtually all components and structures subjected to thickness measurement will have some kind of protective coating. Such coatings, including paint, contribute significant error to thickness measurements of underlying metal walls when using conventional methods. In addition, the removal of coatings, and their subsequent reapplication, involves considerable cost and time. With the field proven Dual Multi feature there is no need to remove any protective coating. It is only necessary to select Dual Multi mode, place the probe in position and take the measurement.

Flexible Data Processing

The DM5E DL has a built-in datalogger, with a capacity to store up a massive 50,000 reading in grid and linear files. This makes the measurement data available for further processing. Using our UltraMATE software. Measurement data files can be transferred from the instrument to a PC, where they can be stored and, if required, printed out in different fixed format reports. Typically, these can be colour histograms, where ranges of measured values are colour-coded, or colour can be used to highlight the distribution of minimum/maximum limit values exceeded. Data can also be pasted into Windows Clipboard for easy transfer into spreadsheet and word processing applications.

A Range of Measurement Displays

All versions of the DM5E offer a range of measurement displays.

These include:

- **Normal:** the thickness value appears as large digits in the centre of the display.
- **MIN Scan:** a minimum thickness scan that allows the user to run the probe over the wall surface. After the evaluation period, the minimum material thickness measured is displayed.
- **MAX Scan:** a maximum thickness scan which is exactly the same as a MIN Scan apart from the fact that the maximum thickness measured is displayed.
- **DIFF/RR%:** compares the measured thickness with a user-specified nominal thickness. The dimensional difference between the two values is displayed, as is the percentage difference.
- **B-Scan:** displays a graphic representation of a B-Scan showing minimum thickness values. The graph is derived by measuring and recording at 1 point per second.

Technical Specifications - DM5E Family

Instrument Specifications	
Operating Principle	Ultrasonic, Pulse Echo Measurement Method
Measuring Range	Depends on Probe and Material, 0.60 mm to 508 mm (0.025" to 20.00") in IP to 1st BW Measurement Mode, 2.00 mm to 127.0 mm (0.079" to 5.00") in Dual-Multi Measurement Mode, the Coating Thickness Range Shall be 0.3 mm to 2.50 mm (0" to 0.098").
Measuring Resolution	0.01 mm Default - Selectable 0.01, 0.1 mm (0.001" Default - Selectable 0.001, 0.01")
Material Velocity Range	0.508 to 18.699 mm/msec (0.0200 to 0.7362"/msec)
Material Velocity Resolution	1 m/s (0.0001"/msec)
Units	Inch or Millimeter
Calibration	One-Point Cal, On-Block and Off-Block, Two-Point Cal
Pulser	Excitation Pulse Spike Pulser Voltage 120 V into 50 ohm Load, Using 20 MHz Oscilloscope
Receiver	Bandwidth 500KHz to 12 MHz @ -3 dB Gain Automatic Gain Control
Display Type	High-Resolution Graphical LCD, 64 x 128 Pixels, 53.0 mm x 27.0 mm with Backlight and Adjustable Contrast
Update Rate	4 Hz or 8 Hz, User Selectable, 24 Hz Scan Mode Capture Rate
Thickness Value Display	NORMAL View Mode 5 Digit, 10.6 mm (0.4") High B-SCAN View Mode 5 Digit, 2.55 mm (0.1") High
Display of Last Reading	Solid Filled or Hollow Digits Indicate Coupled or Uncoupled Condition
Setups	9 Standard Setups for Probes
Alarm Settings	Minimum and Maximum Alarms, Range of 0.25 mm to 508 mm, 0. (0.010" to 20.00") Reading Alternates Between Solid and Hollow When Alarms Are Enabled and Violated
Power Requirements	2 "AA" Size Batteries
Battery Life/Operating Time	Approximately 60 Hours
Instrument Shut-Off	Selectable ALWAYS ON or AUTO OFF After 5, 10, 15, 30 Minutes of Inactivity
Language	Selectable English, German, French, Spanish, Italian, Russian, Japanese and Chinese
I/O Connectors	Transducer Dual Lemo 00 (coax) Mini-USB Mini-USB to PC
Temperature	Operating -10°C to +50°C (+10°F to +120°F) Storage -20°C to +60°C (-10°F to +140°F)
Weight	223 g (0.597 lb) Including Batteries
Size	138 mm x 32 mm x 75 mm
Shock	IEC 68-2-27 Ea, as per Mil Std 810C Method 516.2 Procedure I with a 15g 11ms Impulse Half Sinusoidal Wave Applied 6 Times per Axis
Sealing	IEC529 / IP54, Dust Proof/Dripping Water Proof as per IEC 529 Specifications for IP54 Classification

Data Recorder Option Features	
Capacity	50,000 Readings
File Structures	Grid File
Number of Rows	1 to 50,000
Number of Columns	1 to 223
File Naming	Up to 24 Character Alphanumeric Name
Optional Software	UltraMATE and UltraMATE Lite

DM5E Probe/Transducer Specifications				
	Model DA501	Model DA503	Model DA512	Model DA590
Frequency	5 MHz	2 MHz	7.5 MHz	5 MHz
Probe Style	Standard	Standard	Fingertip	High-Temperature
Operating Temperature Range (continuous)	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 204°C
Contact Diameter	15 mm (0.590")	20 mm (0.787")	7.5 mm (0.300")	12.7 mm (0.500")
IP to First Measurement Range	1.0 to 200 mm (0.040 to 8")	5 to 300 mm (0.200 to 12")	0.6 to 60 mm (0.020 to 2.4")	1 to 125 mm @20°C (0.040 to 5" @68°F) 1.3 to 25.4 mm @204°C (0.050 to 1" @400°F)
Minimum Multi-Echo Measurement Range	3.0 to 100 mm (0.118 to 3.936")	10 to 150 mm (0.393 to 5.905")	3.0 to 25 mm (0.118 to 0.984")	N/A

Note: Instrument specifications are subject to change without prior notice.



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GEIT-20210

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Thickness Probes

Ultrasonic Testing





TC-560



DM-401/DM-411



FH2E-D



FH2E-WR



DA-303



DP-104



HT-400/400A



DA-312



DA312B29 and DA312B16

Application and Description	Model	Probe Cable
TopCOAT and AUTO-V with DMS 2 TC only	TC-560	KBA-531A/531TC
General purpose/side mount connector	DM-401-GP*	KBA-533/533A
General purpose/same as DM-401 only with remote send key on top of probe	DM-401-GP-REM*	KBA-533/533A
General purpose/same as DM-401 only with connectors on top	DM-411-GP*	DA-233
Pit detection and limited access/small diameter fingertip	FH2E-M	Potted
PIT detection and limited access/fingertip	FH2E	Potted
PIT detection and limited access/fingertip	FH2E-D*	Potted
Same as FH2E only with remote send key on top of probe	FH2E-D-REM*	Potted
Wear resistant case/same as FH2E	FH2E-WR	Potted
Wear resistant case/same as FH2E-D	FH2E-D-WR*	Potted
Limited access/fingertip/right angle x-talk barrier	FH2E-RA	Potted
Limited access/fingertip/right angle x-talk barrier	FH2E-D-RA*	Potted
Penetration/side mount connector	DA-303	KBA-533/533A
High penetration side mount connector	DP-104	KBA-532
High temp/for use with DM4 family of instruments	HT-400***	KBA-535/536
High temp/for use with DMS family of instruments	HT-400A***	KBA-535/536
Thin wall and small radius/square fingertip case/with removable cable	DA-312	KBA-532
Thin wall external pitting access/small diameter fingertip	KBA-525	Potted
Thin wall external pitting access/small diameter fingertip	DA-312B16**	Potted
External pitting access/small tip pencil style body	DA-312B29**	Potted
4-inch extension tube for HT-400	ET-103	
7-inch extension tube for HT-400	ET-104	
Steel bell housing for HT-400	BH-342	

*DIALOG Intelligent Probes when used with DM4E, DM4, DM4 DL or DMS 2

**2-PT calibration required on DM4E, DM4, and DM4 DL

***Temp cycled per GE instruction/limited measurement range

Contact Diameter	Frequency	Measuring Range in Steel	Temperature Range
.625 in (15.9 mm)	5	Metal : .060-8.00 in (1.5-200 mm) Coating: .002-0.80 in (0.5-2 mm)	<130°F (< 54°C)
.700 in (17.8 mm)	5	.060-8.0 in (1.5-200 mm) DM4 Dual-Multi 0.120-0.800 in (3-20 mm)	<300°F (<148°C)
.700 in (17.8 mm)	5	.060-8.0 in (1.5-200 mm) DM4 Dual-Multi 0.120-0.800 in (3-20 mm)	<300°F (<148°C)
.700 in (17.8 mm)	5	.060-8.0 in (1.5-200 mm) DM4 Dual-Multi 0.120-0.800 in (3-20 mm)	<300°F (<148°C)
.280 in (7.1 mm)	7.5	.030-1.0 in (.75-25 mm)	<130°F (<54°C)
.380 in (9.6 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.380 in (9.6 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.380 in (9.6 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.550 in (14 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.550 in (14 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.380 in (9.6 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.380 in (9.6 mm)	7.5	.030-2.0 in (.75-50 mm)	<130°F (<54°C)
.650 in (16 mm)	2	.200-12.00 in (5-300 mm)	<140°F (<54°C)
1.25 in (31.8 mm)	1	.200 in (5 mm) minimum	<130°F (<54°C)
.550 in (12.7 mm)	5	.040-10.0 in (1.0-25 mm)	<1000°F (<540°C)
.550 in (12.7 mm)	5	.040-10.0 in (1.0-25 mm)	<1000°F (<540°C)
.300 in (7.5 mm)	10	.025-2.0 in (.6-50 mm) DM4 Dual-Multi .080-0.500 in (2-12 mm)	<140°F (<60°C)
.200 in (5 mm)	10	.025-1.0 in (.6-25 mm)	<130°F (<54°C)
.120 in (3 mm)	10	.030-0.500 in (.7-12 mm)	<140°F (<60°C)
.120 in (3 mm)	10	.030-0.500 in (.7-12 mm)	<140°F (<60°C)

Specifications are subject to change without notice.

Probes to Meet all Demanding Applications

GE offers a complete line of dual element probes compatible with its D-Meter line of ultrasonic thickness gauges (DMS and DM4 family). Standard probes are readily available to satisfy a wide range of remaining wall thickness applications, including high-temperature, throughcoating, erosion/corrosion, thin materials, areas of limited access, tough-to-penetrated materials (coarse grained/non-metals), external pitting, wear-resistance, boiler tubing, small diameter piping/tubing, and most all general purpose applications.

DIALOG Intelligent Probes are automatically recognized by the DM4 or DMS 2 family of instruments for quick setup, best performance and test documentation.

If standard probes will not satisfy your requirements, our applications lab is fully equipped and staffed to offer practical solutions to your special application needs. Special probes are quoted, developed and delivered on a timely basis directly through the applications lab.

Cables and Connections



Cable	Code	Length
KBA-533	A --- A	1.2 m (4 ft)
KBA-534	A --- C	1.2 m (4 ft)
DA 233	A --- B	1.2 m (4 ft)
KBA 535	A --- E	1.2 m (4 ft)
KBA 536	A --- D	1.2 m (4 ft)
KBA 531A	A --- F	1.2 m (4 ft)

Couplants and Calibration Blocks

Name	Type	Descriptions
Exosen	General Purpose Fluid	Water soluble, non-toxic and non-flammable, Exosen is available in five standard viscosities: Exosen 10, 14, 20, 30 and 40.
Hitempco	Ambient to High Temp	Medium viscosity paste in 2 oz tube. Temperature range up to 500°F (260°C).
ZGM	High-temperature coupling paste	High viscosity paste, with solid filling, specially made for wall thickness measurements on hot parts; temperature range: +200°C to +600°C (+392°F to +1112°F); in 100g tubes.
SLC-70	Thick, Irregular Surface	Highly attenuative paste (honey consistency) in 4 oz jar.
B-320	4-Step Carbon Steel Step Block	Steps at .25 in, .50 in, .75 in and 1.0 in
B-310	5-Step Carbon Steel Step Block	Steps at .100 in, .200 in, .300 in, .400 in and .500 in
B-004	2-Step Check Block	0.100 and 1.00 Block (303 stainless steel—not certified)



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GEIT-20056EN (08/08)



With a thickness gauge in one hand and your ultrasonic transducer in the other, did you ever wish you had an extra hand?

Introducing the **StressTel PocketMIKE™** general purpose thickness gauge. The **PocketMIKE™**'s integrated product design combines the instrument and transducer into a single package not much larger than a traditional cabled probe allowing for true single hand operation.

The **PocketMIKE™** thickness gauge is packaged in a machined stainless steel housing environmentally sealed to IP67.

Four button operation and Automatic On-Block Probe Zero further support StressTel's goal of providing very capable yet simple to use instruments.

The high contrast backlit display can be mechanically and electronically rotated for ease of reading in any orientation.



Single hand operation
Waterproof to IP67/IEAC529

It's That Simple!

PocketMIKE™ SPECIFICATIONS

Kit Includes

Instrument
Wrist Lanyard
One 1.5V AA Alkaline Battery
Hard Shell Carry Case
Integrated Transducer
Couplant
Operating Manual
Certificate of Calibration



- 1 Power Key
- 2 Increase value within CAL or SETUP
- 3 Decrease value within CAL or SETUP
- 4 SETUP key to change operating modes
- 5 Initiates CAL function
- 6 Backlight Status indicator
- 7 Coupling indicator
- 8 Thickness Mode indicator
- 9 Velocity Mode indicator
- 10 CAL Mode indicator
- 11 Metric or Imperial Units
- 12 Battery Control

Special Features

Integrated Transducer, 5 MHz
True Single Hand Operation
Machined Stainless Steel Housing
Environmentally Sealed to IP67/IEC529
Automatic On-Block Probe Zero
Automatic Timed Shutoff
Auto Backlight Mode
Known Thickness Calibration
Known Velocity Calibration
4 Button Sealed Membrane Keypad
User Selectable Measurement Units
Exchangeable Probes



* Material and application dependent
Specifications subject to change without notice

Physical Size

100 mm High (4 inches)
35 mm Nominal Diameter (1.38 inches)
12 mm (0.5 inch) Probe Diameter

Weight

200 grams with Battery

Power Source

One 1.5V AA Alkaline Battery

Measuring Range*

1.0 mm to 250 mm
(0.040 inches to 9.999 inches)

Displayed Resolution

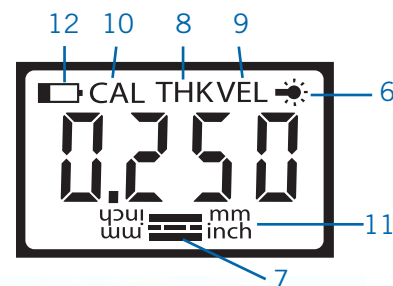
0,01 up to 99,99 mm, 0,1 above
(0.001 up to 9.999 inches, 0.01 above)

Operating Temperature

-10° C to +50° C
(14° F to 122° F)

Probe Surface Temperature

-10° C to +100° C
(14° F to 212° F)



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STRESSTEL
part of GE Inspection Technologies

DANATRONICS

AFFORDABLE EHC-03 ULTRASONIC THICKNESS GAGE



With more than 75 years of world-wide experience in ultrasonic design, Danatronics is pleased to welcome our EHC-03 to our corrosion thickness gage family. The EHC-03 is designed to accurately and non-destructively measure metal structures subject to corrosion.

The EHC-03 is packaged in our field proven IP54 case used in our popular EHC-09 series.

The EHC-03 represents a quality, ultrasonic thickness gage designed to provide years of

unprecedented measurements all at an entry level price. With the new Q-bar, even the most inexperienced operators can quickly determine if a thickness reading is stable. The EHC-03 offers a wide measurement range, two point calibration and even multiple on-screen languages. The EHC-03 is proudly made in the U.S.A. and has a 2 year warranty. Contact Danatronics for more details.

Specifications for EHC-03:

Size: 5" (127 mm) (L) x 3" (76.2 mm) (W) x 1.25" (31.75 mm) (H)

Weight: 8 OZ (.23 kg)

Thickness range: .040"-20" (1mm-508mm) in steel

Material Velocity Calibration Range: 0.0200 - 0.7362 in/ μ S (0.508 - 18.699 mm/ μ S).

Temperature: Gage Operating: -4° F to 122° F (-20° C to 50° C)

Battery life: Up to 50 hours (20 hours with backlight on)

Battery type: 2 "AA" Alkaline

Display: 128 X 64 Graphics LCD monochrome, sunlight readable

Language support: multi language of English, French, Spanish, Italian, Czech, German, Chinese Portuguese, Slovak, Finnish, and Hungarian

Q-Bar: graphic display that confirms measurement stability

Package: IP54 rated custom, splash-proof, high impact plastic with rubber keypad

Bandwidth: 0.5-20 MHz (-3dB)

Units: English/Metric/Microseconds

Backlight: Auto on with valid reading or keypress for 10 seconds

Optional Protective pouch: Custom molded pouch with wrist strap and belt clip

Transport case: Hard plastic with high density molded foam cut out for gage and most accessories

Freeze mode: Freezes display

Hold mode: Holds display to retain last thickness reading

Standard EHC-03 includes: Ultrasonic thickness gage, DKS-537 5MHz 0.375 inch diameter potted cable, operational manual, NIST traceable calibration certificate

Note: The EHC-03 is only available with the DKS-537 and is not field upgradeable

Warranty: Limited 2 year warranty on parts and labor for gage only under normal use

Typical Applications:

- Boiler Tubes
- Pressure Vessels
- Storage Tanks
- Ship Hulls
- Containers Home
- Oil Tanks
- Pipes
- Steam Lines
- Compressor Shafts

EHC-03 Additional Features:

- Affordable hand held ultrasonic thickness gage
- Measures .040"-20" of steel
- Simple to operate
- 2 point calibration
- Q-bar to confirm measurement stability
- On screen display of multiple languages
- IP54 rated case
- Made in USA



AS EASY AS A-B-C:

EHC-09

Wave

A IS FOR A-SCAN

B IS FOR B-SCAN

AND C IS FOR COLOR DISPLAY...

IP54 RATED

- LIVE SIMULTANEOUS COLOR WAVEFORM AND THICKNESS DISPLAY
- DYNAMIC WAVEFORM COLOR CHANGE ON ALARM
- CONTROL OF GAIN, BLANKING, RANGE, RF AND RECTIFY MODES
- AVAILABLE IN MULTIPLE MODELS



With more than 75 years of world-wide experience in Ultrasonic designs, Danatronic is proud to pioneer the world's first hand held ultrasonic thickness gage with color display; our EHC09 color wave series. Unique features include live **COLOR** A-Scan, B-Scan, 100K thickness reading (3500 waveforms) datalogger with interface program, vibration and **COLOR** change of waveform on alarm.

Auto range centers echoes in the middle of the screen independent of material thickness. The blanking and gain adjustments are ideal for complete waveform adjustment and control. The echo to echo feature can ignore the paint or coating thickness. The waveform option can even be added to our popular EHC-09 gages.

TYPICAL APPLICATIONS:

- Boiler Tubes
- Pressure Vessels
- Storage Tanks
- Ship Hulls
- Containers
- Home Oil Tanks
- Pipes
- Steam lines
- Compressors
- Shafts
- Bridge Pins
- Bond Inspection

Software options are field upgradeable, there is no need to plug in a USB cable or return the unit to our factory.



6805 COOLRIDGE DR ■ TEMPLE HILLS MD 20748
301-449-7300 ■ 800-638-0554 ■ FAX 301-449-7011
EMAIL: sales@detek.com

EHC-09 | Wave

Size: 5" (127 mm) (L) x 3" (76.2 mm) (W) x 1.25" (31.75 mm) (H)

Weight: 8 OZ (.23 kg)

Thickness range: 0.020 - 20 inches (.50 mm - 508 mm) in steel, depending on material, temperature and transducer selection

Material Velocity Calibration Range: 0.0200 - 0.7362 in/ μ S (0.508 - 18.699 mm/ μ S)

Temperature: Gage Operating: -4° F to 122° F (-20° C to 50° C)
High temperature transducers available for material temperatures from -5° F to 950° F (-20° C to 510° C)

Battery life: 8 -14 hours (depends on operating conditions)

Battery type: 2 "AA" Alkaline

Color Display: 170 X 220 pixels, high resolution TFT color display, sunlight readable

Language support: multi language of English, French, Spanish, Italian, Czech, German, Portuguese, Slovak, Finnish, and Hungarian

Information displays: Loss of signal (LOS), min, max, large reading while displaying min at the same time, velocity, zero, calibration, units, freeze, unfreeze, % battery life remaining, gain - low, std, high, echo to echo symbol

Resolution: .001" (.01 mm), .01" (.1 mm)

Probe Recognition: Via pick list from a menu

Delay line zero measurement: Auto at power up with listed numeric value. Ideal for correcting delay line wear/curvature and for transducer acoustic drift at elevated temperatures

Package: IP54 Rated, Custom, splash-proof, high impact plastic with illuminating rubber keypad for go/no-go testing

Bandwidth: 0.5-20 MHz (-3dB)

Units: English/Metric/Microseconds

Gain: Low, Standard and High for varying test conditions (for gages without a waveform) or 1 dB steps from 20-90 dB or Automatic Gain Control (AGC) for gages with a waveform

Differential Mode: Displays the difference from the actual thickness measurement in absolute or percentage of a user entered reference value

Alarms: Minimum/Maximum depth, vibrates, beeps and display flashes as well as keypad illumination

Illuminating keypad: F1 = Red, F2 = Yellow and F3 = Green for easy, go/no-go testing

Ergonomics: User selectable lefty or righty display changes via keypad

Backlight: Light Emitting Diode (LED), On/Off or Auto On based on valid readings or last key press

Shut off: Auto, user programmable time out (1-31 minutes), after no reading/key press or never shut off

Protective Pouch: Custom molded pouch with belt clip and wrist strap for either lefty or righty operators (optional, standard with DLC and DLCW).

Transport case: Hard Plastic with high density molded foam cut out for gage and most accessories

Freeze mode: Freezes display (ideal for high temperature applications)

Hold mode: Holds display to retain last thickness reading

Standard EHC-09 Wave Series includes: Ultrasonic thickness gage, DKS-537, 5 MHz 0.375 inch diameter potted cable, operational manual, Data XL interface program, couplant, and transport case. See chart below for standard inclusions for each gage

Warranty: Limited 2 year warranty on parts and labor for gage only under normal use

Transducers: A wide variety of dual transducers from 1-10 mhz, high temperature duals, delay lines and pencil probes

Item	Specification	EHC-09DLCW	EHC-09DLC	EHC-09CW	EHC-09C
Thickness range:	0.020 - 20 inches (.50 mm - 508 mm) in steel	✓	✓	✓	✓
Delay line zero measurement:	Auto at power up with listed numeric value. Ideal for correcting delay line wear/curvature and for transducer acoustic drift at elevated temperatures	✓	✓	✓	✓
Scan mode:	Simultaneously displays minimum or maximum and actual thickness value at 20 measurements per second	✓	✓	✓	✓
Differential Mode:	Displays the difference from the actual thickness measurement and a user entered reference value	✓	✓	✓	✓
Alarms:	Minimum/Maximum depth, vibrates, beeps and display flashes as well as keypad illumination and vibration	✓	✓	✓	✓
Illuminating keypad:	F1 = Red, F2 = Yellow and F3 = Green for easy, go/no-go testing	✓	✓	✓	✓
Velocity Mode:	Displays acoustic sound speed	✓	✓	✓	✓
Echo to Echo:	Measures the metal thickness only (ignore paint and coatings)	✓	✓	✓	✓
Range:	Adjustment of manual range control or auto zoom tracking to center echoes independent of selected range	✓	○	✓	○
Rectification Modes:	RF, Half Wave Positive, Half Wave Negative and Full Wave Rectification	✓	○	✓	○
Live Waveform (A-scan):	Full adjustments, for gain in 1db step or AGC, main bang blank, blank after first received echo, range including zoom auto tracking to center echoes independent of material and rectification	✓	○	✓	○
B-Scan (Encoded or Non-Encoded)	Displays a cross section of the test piece with optional encoder and factory upgrade	✓	✓	○	○
Datalogger:	Upgrade to Data Logger Version, 100,000 readings in linear, 2D, 3D grid or boiler alphanumeric files, 20 character file name, file compare, grid review and export to excel via Data XL interface program, also compatible with Ultrapipe	✓	✓	○	○

○ = Software options that are field upgradeable, no need to return the unit to the factory

ECHO Series

Hand-Held Ultrasonic Thickness Gages
for Corrosion and Precision Applications



- Simple to Operate
- Hand Held
- Field Upgradeable Options
- Corrosion and Precision Modes
- Live A-scan
- Made in the USA

A Totally New Platform of Ultrasonic Thickness Gages

Our new ECHO series represents a totally new platform of ultrasonic thickness gages combining corrosion and precision gaging into one tough, small package... The perfect size of fit and function! Hold the ECHO in your hand and you will agree no detail has been overlooked and the ergonomics are unmatched by any thickness gage in the industry! The new ECHO series comes in 3 configurations; ECHO 9, ECHO 8 and ECHO 7. ECHO 9 is our corrosion gage using dual transducers, ECHO 7 is our precision gage with 1 micron resolution using single element transducers and ECHO 8 is the ultimate unit combining both dual and single element transducers.

The new ECHO series can non-destructively measure essentially any engineering material thickness. In its most popular configuration, the ECHO 9 series is an extremely capable, hand held ultrasonic thickness gage for measuring the wall thickness of primarily metal structures subject to corrosion. ECHO can easily be upgraded to precision mode to utilize single element transducers.

The ECHO series has a remarkable sunlight readable 3.5" color display, up to 32 Gb of micro SD memory, built-in rechargeable high capacity Li Ion battery all packaged in a custom case designed for IP67 rating. Not sure which model to choose? Don't worry, the ECHO series is fully capable of field upgrades directly from the keypad so you will never be stuck with an obsolete product or experience any downtime. ECHO Series can measure from .020" to 23" in steel in corrosion mode or as thin as .006" in steel when configured as a precision gage.



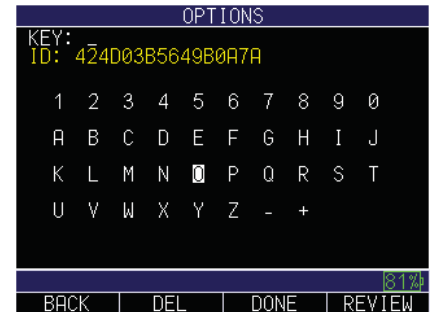
ECHO Series Standard Features

- Compatible with a wide variety of Danatronics and common competitor dual and single element transducers
- Change color and VIBRATE on alarm (ideal for inspections in loud environments)
- 27 Hour battery life with hi-capacity re-chargeable battery pack via the USB port
- Wide thickness range (.006" to 23" depending on gage type, material and transducer)
- Inches, mm or μ Sec
- Multiple languages
- Velocity mode
- Fast Min/Max mode to display actual thickness and minimum and maximum at the same time
- Gain, range, rectification, blank adjustments with live waveform
- Datalogger 2 Gb micro SD card standard expandable to 32 Gb
- Datalogger interfaces with Microsoft Excel
- Designed for IP67
- Made in the USA
- Simple one hand operation
- Field upgradeable software options

ECHO Series Standard Inclusions

Includes transducer (DKS537, dual 5.0 Mhz, .375" with potted 3 foot cable for corrosion gages; for precision gages, a probe up to 10 Mhz with a lemo to microdot cable are included), 2 Gb micro SD card, Li-ion battery, battery charger, transport case, manual with data XL, USB cable, echo-to-echo to ignore coatings. Our most advanced models include custom rubber boot.

Call with your ID and payment to unlock any additional features.



ECHO Series Software Options

Software options are all field upgradeable with many advantages:

- Options are activated via the keypad...no need to plug into a computer
- Only takes less than one minute
- No shipping cost
- No downtime
- Never worry about buying an obsolete unit
- Less initial outlay of capital

Datalogger

(includes B-scan) internally store millions of thickness readings with ID location and send readings to Microsoft Excel via our Data XL interface program.

Oxide Scale

Simultaneously displays the wall thickness of the boiler tube thickness as well as the internal oxide scale at their independent velocities. Knowing the thickness of the boiler tube can greatly improve the efficiency and extended life of the tube.

Live Waveform

Displays the live A-scan for echo verification and real time control of range, gain, rectification and blanks.

Corrosion Mode

Uses dual transducers to measure remaining wall thickness on primarily steel structures subject to corrosion.

Angle Beam Software

Available on ECHO 8 and ECHO 9, displays trig functions of detected echo for angular distance, surface and depth.

NOTE: Not meant to be a code compliant ultrasonic flaw detector due to vertical linearity and display update rate.

Precision Mode

Allows for the use of single element transducers along with up to 2,700 stored application setups with 1 micron resolution (.0001" or .001mm).

ECHO 9 Corrosion Thickness Gage

Our ECHO 9 is our premier corrosion thickness gage with a wide thickness range, able to be used with a variety of dual transducers as well as a selection of single element and angle beam probes. Similar to our precision thickness gages, ECHO 9 can save and store custom setups.

Typical Applications

- Boiler tubes
- Pressure vessels
- Storage tanks
- Ship hulls
- Pipes
- Steel beams on bridges

Standard Features

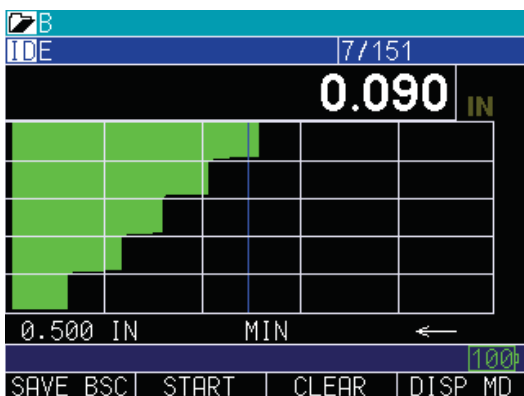
- Compatible with a wide variety of Danatronics dual and single element transducers
- Wide thickness range (.020" to 23" depending on gage type, material and transducer)
- Coating Thickness and substrate thickness displayed simultaneously on gage with live waveform
- High temperature probes available up to 950F/509C (intermittent use)
- Temperature correction
- File compare features shows old readings along with new readings for datalogger versions (real-time corrosion monitor)
- Available angle beam option



ECHO 9 – Base model includes Echo to Echo



ECHO 9W – Includes Waveform, Coating Thickness



ECHO 9DL – Includes Datalogger, B-scan, Temperature Correction



ECHO 9DLW – Includes Waveform, Datalogger, B-scan, Coating Thickness, Temperature Correction

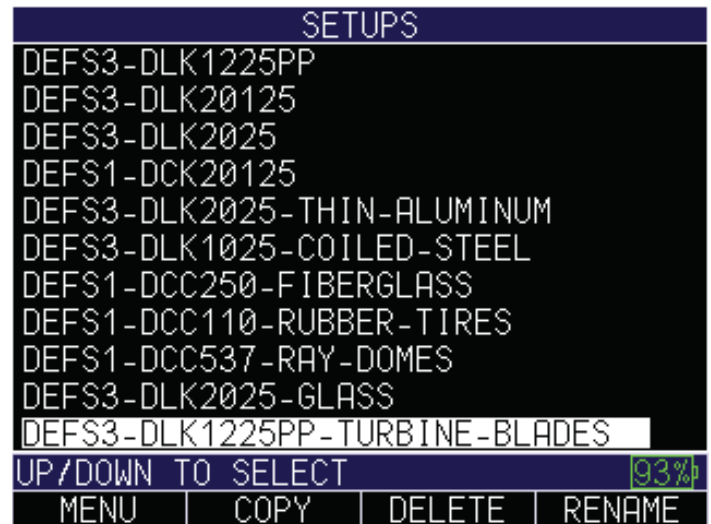
ECHO 7 Precision Thickness Gage

ECHO 7 hand-held ultrasonic thickness gages are designed for use with single element contact, delay line and immersion transducers to provide the maximum thickness range and up to 1 micron resolution. ECHO 7 can save up to 2,700 custom applications setups allowing the operator to quickly and easily switch transducers and setups on the fly for unique and separate tasks.



Standard Features

- .006-20" range in steel
- 1 micron resolution (0.0001" or 0.001 mm)
- single element, contact, delay line and immersion transducers (1-25 MHz)
- Store and recall up to 2,700 setups
- Multiple modes for challenging applications
- 30 Mhz bandwidth
- Squarewave Pulser
- Zoom Auto Tracking



Typical Applications

- Castings
- Turbine blades
- Plastic parts including bottles, pipes, trays and toys
- Coil steel and automotive body panels
- Fiberglass and gel coatings
- Velocity verification for ductile and gray iron (Velocimeter)
- Aluminum, glass, ceramics, zinc and more

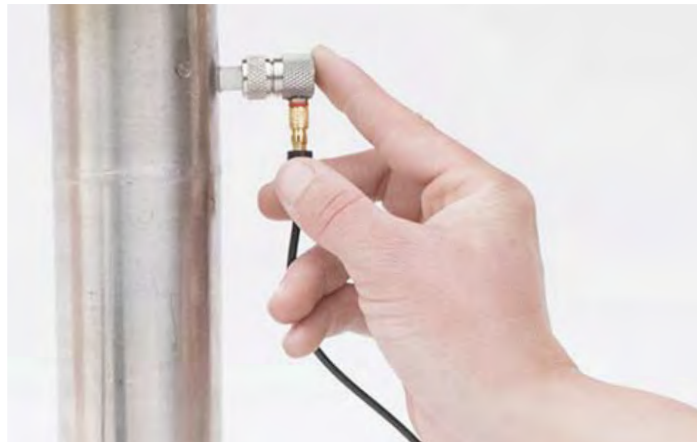


ECHO 8 Corrosion and Precision Thickness Gage

ECHO 8 represents our most capable ultrasonic thickness gage combining both dual and single element probes into one small instrument. Quickly switch transducers and “gage type” to essentially non-destructively measure any engineered material. The ECHO series can keep track of up to 2,700 stored setups, so switching from materials with different thicknesses and alarm values is simple.

Typical Applications

- Inspection Companies—all-purpose gage for measuring any engineered material thickness
- Airplane Inspection (thin aluminum, plastic windows, and rubber tires)
- Marine Surveyors (fiberglass & steel)



ECHO series in A and B-Scan with EZ Scan magnetic wheel encoder

Standard Features

- Includes all features from the ECHO 7 and ECHO 9
- Switch from dual to single element transducers
- Switch resolution from .01” to .001” to .0001”
- Store and recall up to 2,700 applications setups
- Rechargeable batteries good for more than 24 hr.
- ECHO 8DLW includes custom rubber boot with stand



Environmentally Tough, Ergonomically Superior!



Environmentally Tough!

The ECHO series was designed from the ground up. With more than 85 combined years in designing, manufacturing and using hand held ultrasonic thickness gages, Danatronics left no detail uncovered. From its new case designed for IP67, to its easy to read sunlight readable 3.5" color display, you will find the ECHO series combines practical features with a simple, clean design built for years of field service and durability.

Ergonomically Superior!

With its new 3.5" sunlight readable display, The ECHO series offers many display formats to suit any age operator and reduce fatigue. So whether you want to view the largest possible numbers or would prefer more text on screen, ECHO has you covered.

ECHO is also perfectly balanced and makes holding it in one hand possible and simple... no clumsy joy sticks or second functions



Easy to hold and operate in one hand

needed. There is even a world's first vibrate on alarm to inform the operator any pre-set thickness threshold has been tripped which is great for tired operators and testing in loud environments.

Hardware Options

- Rubber boot with chest harness with built-in finger strap and bail (stand)
- Magnetic wheel encoder
- Footswitch
- Remote power bank
- Magnetic pipe stand

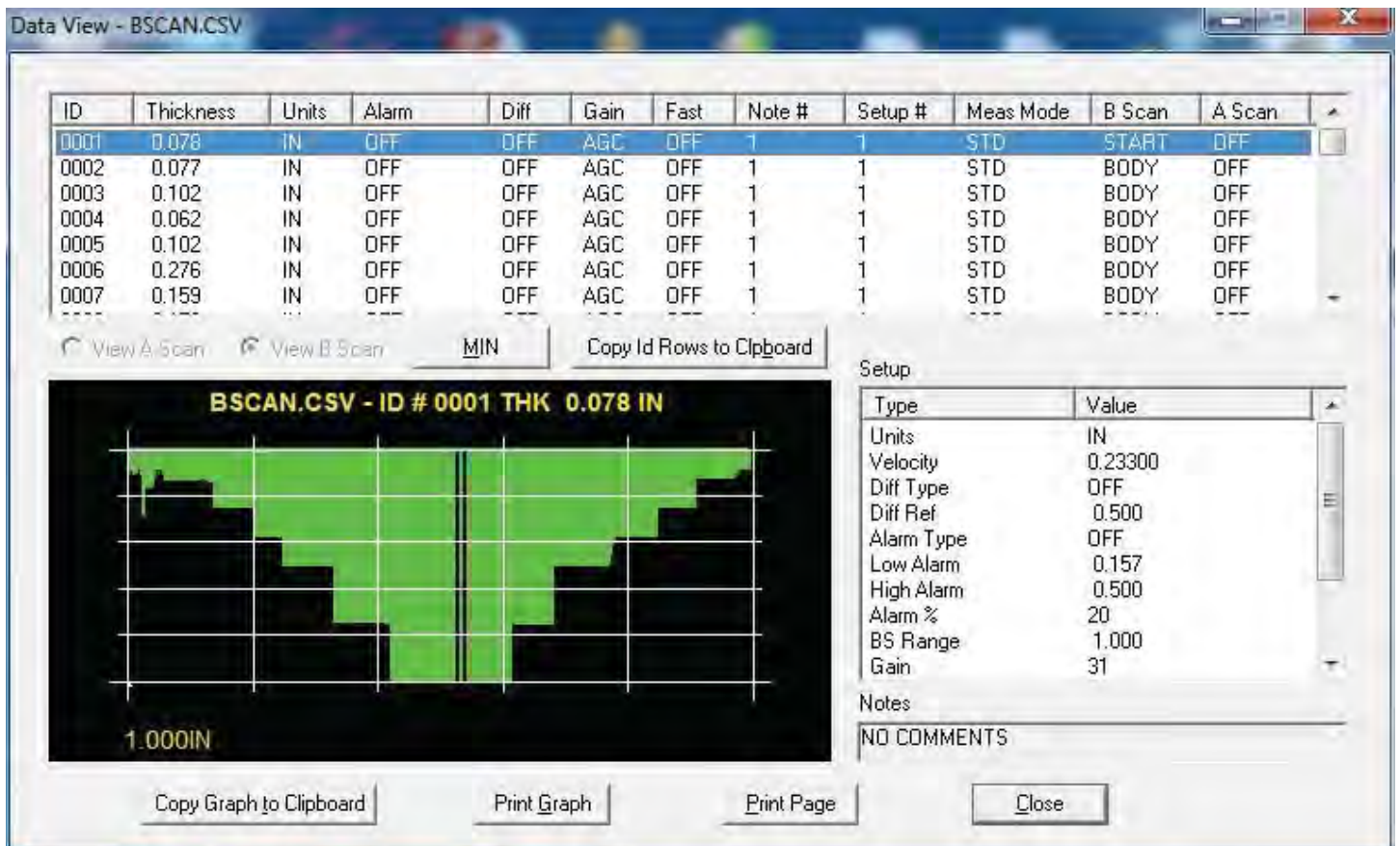
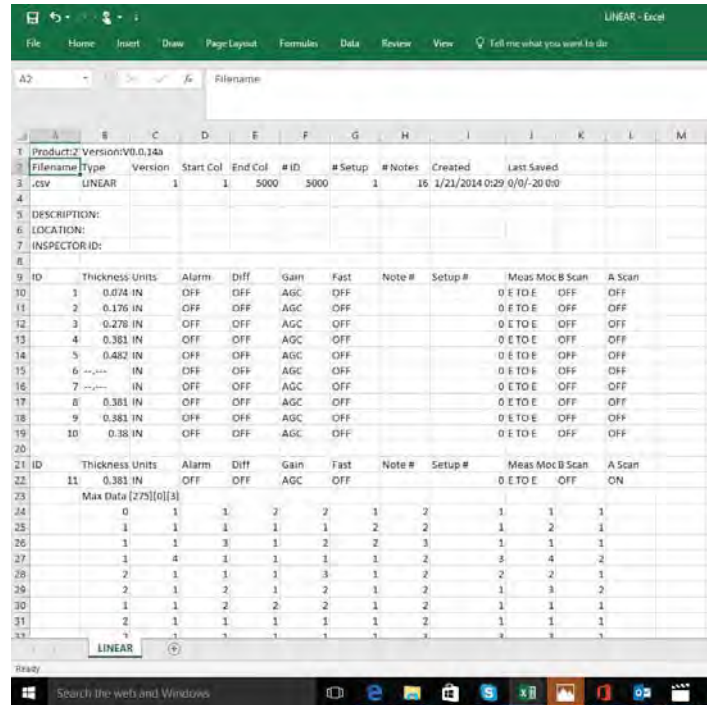


Data XL and Data XL PRO

At Danatronics we believe managing your saved data should be simple. As such, we include with every thickness gage a free interface program we call Data XL. Data XL saves readings to .csv files that can be used in any spreadsheet program such as Microsoft Excel or Google Sheets.

Here are some advantages:

- Write custom batch programs
- Simple double click the file to be transfer and Microsoft Excel with all i.d.'s and readings are displayed
- Create file and send them to the ECHO
- Merge files using Data XL
- Saved stored application setuups can be sent to the ECHO or multiple ECHO units to ensure reliability and repeatability
- Update firmware (latest version of operating software is available on the support tab of www.danatronics.com)
- Send Bit Maps (screen shots) to further document your inspections



The optional Data XL Pro does all of the above plus allows the transfer of A-scan and B-scan for the ultimate in computer software reporting.

Danatronics Transducers

The ECHO series comes loaded with a default list of probes to solve a vast variety of applications for any non-destructive testing wall thickness of most engineering materials.

So, if you are measuring, boiler tubes, pressure vessels, ship hulls, bridges, coil steel, aluminum, plastic bottles, toys, trays and anything in between...we have the probe for you..

Dual Transducers

Standard Dual Transducers

ECHO Model	Part No.	Range in Steel	Echo to Echo Range in Steel	Freq.	Diameter	Temperature Range	Connector Type
8, 9	DK-250	0.100"-20" (2.5mm-508mm)	0.200"-2" (5.08mm-50.8mm)	2.25 MHz	0.500"/12.7mm	32-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DK-525	0.040"-20" (1mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.250"/6.35mm	32-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DK-537	0.040"-20" (1mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.375"/9.52mm	32-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DKS-537	0.040"-20" (1mm-508mm)	0.100"-0.750" (2.54mm-19.05mm)	5.0 MHz	0.375"/9.52mm	32-100F/0-38C	Right Angle Potted - Lemo 00
8, 9	DK-550	0.040"-20" (0.76mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.500"/12.7mm	32-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DK-718	0.030"-2" (0.76mm-50.8mm)	0.060"-1" (1.52mm-25.4mm)	7.5 MHz	0.187"/4.75mm	32-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DK-718LPM*	0.050"-2" (1.25mm-50.8mm)	N/A	7.5 MHz	0.187"/4.75mm	32-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DK-1025	0.020"-2" (0.5mm-50.8mm)	0.060"-1" (1.52mm-25.4mm)	10.0 MHz	0.250"/6.35mm	32-392F/0-200C	Right Angle Potted - Lemo 00

*LPM = Low Profile Mini; probe height 16mm, top dia. 12mm

Composite Dual Transducers

ECHO Model	Part No.	Range in Steel	Echo to Echo Range in Steel	Freq.	Diameter	Temperature Range	Connector Type
8, 9	DC-110	0.200"-20" (5.08mm-508mm)	Not Recommended	1.0 MHz	1"/25.4mm	10-160F/-12-70C	Right Angle Potted - Lemo 00
8, 9	DC-175	0.150"-20" (3.81mm-508mm)	Not Recommended	1.0 MHz	0.750"/19.05mm	10-160F/-12-70C	Right Angle Potted - Lemo 00
8, 9	DC-250	0.100"-20" (2.5mm-508mm)	0.200"-2" (5.08mm-50.8mm)	2.25 MHz	0.500"/12.7mm	10-160F/-12-70C	Right Angle Potted - Lemo 00
8, 9	DC-525	0.030"-20" (0.76mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.250"/6.35mm	10-160F/-12-70C	Right Angle Potted - Lemo 00
8, 9	DC-537	0.040"-20" (1mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.375"/9.52mm	10-160F/-12-70C	Right Angle Potted - Lemo 00
8, 9	DC-550	0.030"-20" (0.76mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.500"/12.7mm	10-160F/-12-70C	Right Angle Potted - Lemo 00

Dual Echo To Echo Transducers

ECHO Model	Part No.	Range in Steel	Echo to Echo Range in Steel	Freq.	Diameter	Temperature Range	Connector Type
8, 9	DK537EE	0.040"-20" (1mm-508mm)	0.080"-1.5" (2mm-38.1mm)	5.0 MHz	0.375"/9.52mm	31-392F/0-200C	Right Angle Potted - Lemo 00
8, 9	DK-718EE	0.030"-1.5" (0.76mm-38.1mm)	0.060"-1.0" (1.5mm-25.4mm)	7.5 MHz	0.187"/4.75mm	31-392F/0-200C	Right Angle Potted - Lemo 00

Dual High Temp Transducers

ECHO Model	Part No.	Range in Steel	Echo to Echo Range in Steel	Freq.	Diameter	Temperature Range	Connector Type
8, 9	DHT-537	0.040"-20" (1mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.375"/9.52mm	-5 to 950F -20 to 509C	Straight Microdot requires detachable cable
8, 9	DHT-537RM	0.040"-20" (1mm-508mm)	0.080"-2" (2mm-50.8mm)	5.0 MHz	0.375"/9.52mm	-5 to 950F -20 to 509C	Right Angle Microdot requires detachable cable

Quick Change Composite Element Angle Beam Transducers

Available in: Diameter: 1/4", 3/8" & 1/2"; Frequencies: 1.0, 2.25, 3.5, 5.0, 7.5 & 10.0 MHz; Standard Wedges: 30°, 45°, 60°, 70°



Danatronics Transducers

Contact Transducers

Standard Contact

ECHO Model	Part No.	Range in Steel Class 1	Range in Steel Class 2	Range in Steel Class 3	Range in Plastic	Freq.	Diameter	Temperature Range	Connector Type*
7, 8	DCK-250	0.100"-20" (2.54mm-508mm)	n/a	n/a	n/a	2.25 MHz	0.500" 12.7mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-525	0.040"-20" (1mm-508mm)	n/a	n/a	n/a	5.0 MHz	0.250" 6.35mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-537	0.040"-20" (1mm-508mm)	n/a	n/a	n/a	5.0 MHz	0.375" 9.52mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-550	0.080"-20" (2mm - 508mm)	n/a	n/a	n/a	5.0 MHz	0.500" 12.7mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-718	0.030"-10" (.76mm - 254mm)	n/a	n/a	n/a	7.5 MHz	0.187" 4.75mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-1025	0.020"-2" (.5mm - 50.8mm)	n/a	n/a	n/a	10.0 MHz	0.25" 6.35mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-1025HR	0.020"-1" (.5mm - 25.4mm)	n/a	n/a	n/a	10.0 MHz	0.25" 6.35mm	32-392F 0-200C	Right Angle Microdot
7, 8	DCK-20125	0.016"-1" (.4mm - 25.4mm)	n/a	n/a	n/a	20.0 MHz	0.125" 3.175mm	32-392F 0-200C	Right Angle Microdot

Contact Composite

ECHO Model	Part No.	Range in Steel Class 1	Range in Steel Class 2	Range in Steel Class 3	Range in Plastic	Freq.	Diameter	Temperature Range	Connector Type*
7, 8	DCC-110	0.300"-20" (7.62mm - 508mm)	n/a	n/a	n/a	1.0 MHz	1" 25.4mm	10-160F -12-70C	Right Angle Microdot
7, 8	DCC-175	0.300"-20" (7.62mm - 508mm)	n/a	n/a	n/a	1.0 MHz	0.750" 19.05mm	10-160F -12-70C	Right Angle Microdot
7, 8	DCC-250	0.100"-20" (2.54 - 508mm)	n/a	n/a	n/a	2.25.0 MHz	0.500" 12.7mm	10-160F -12-70C	Right Angle Microdot
7, 8	DCC-537	0.040"-20" (1mm-508mm)	n/a	n/a	n/a	5.0 MHz	0.375" 9.52mm	10-160F -12-70C	Right Angle Microdot

Delay Line Transducers

Delay Line Standard

ECHO Model	Part No.	Range in Steel Corrosion Mode	Range in Steel Class 2	Range in Steel Class 3	Echo to Echo Range in Steel	Range in Plastic	Freq.	Diameter	Temperature Range	Connector Type*
7, 8, 9	DLK-525	0.080"-0.750" (2mm-19mm)	0.025-0.500" (6.35mm - 12.7mm)	0.020"-0.375" (0.5mm - 9.5mm)	0.025" - 0.400" (0.635mm-10.16mm)	0.010"- 0.150" (0.254mm - 3.81mm)	5.0 MHz	0.25" 6.35mm	32-122F 0-50C	Right Angle Microdot
7, 8, 9	DLK-1025	0.080"-0.750" (2mm-19mm)	0.020"-0.500" (0.5mm - 12.7mm)	0.015"-0.375" (0.38mm - 9.5mm)	0.025" - 0.400" (0.635mm-10.16mm)	0.010"-0.150" (0.254mm - 3.81mm)	10.0 MHz	0.25" 6.35mm	32-122F 0-50C	Right Angle Microdot
7, 8, 9	DLK-1225PP-SM	0.080"-0.300" (2mm-7.62mm)	0.020"-0.200" (0.5mm - 5.08mm)	0.015"-0.125" (0.38mm - 5.08mm)	0.020" - 0.200" (0.508mm-5.08mm)	0.015"-0.060" (0.15mm - 1.52mm)	12.0 MHz	0.080" 2mm (tip dia)	32-122F 0-50C	Right Angle Microdot
7, 8, 9	DLK-1225PP-RM	0.080"-0.300" (2mm-7.62mm)	0.020"-0.200" (0.5mm - 5.08mm)	0.015"-.125" (0.38mm - 5.08mm)	0.020" - 0.200" (0.508mm-5.08mm)	0.015"-0.060" (0.15mm - 1.52mm)	12.0 MHz	0.080" 2mm (tip dia)	32-122F 0-50C	Right Angle Microdot
7, 8	DLK-2025	n/a	0.015"-0.300" (3.81mm - 7.62mm)	0.006"-0.200" (0.152mm- 7.62mm)	n/a	0.003"-0.100" (0.076mm - 2.54mm)	20 MHz	0.25" 6.35mm	32-122F 0-50C	Right Angle Microdot
7, 8	DLK-20125	n/a	0.015"-0.200" (3.81mm - 7.62mm)	0.006"-0.200" (0.152mm- 7.62mm)	n/a	0.003"-0.100" (0.076mm - 2.54mm)	20 MHz	0.125" 3.175mm	32-122F 0-50C	Right Angle Microdot

Delay Line Composite

ECHO Model	Part No.	Range in Steel Class 1	Range in Steel Class 2	Range in Steel Class 3	Range in Plastic	Freq.	Diameter	Temperature Range	Connector Type*
7, 8	DLC-525	n/a	0.040"-0.500" (1mm - 12.7mm)	0.030"-0.375" (0.762mm-9.5mm)	0.020"-0.200" (0.5mm - 5.08mm)	5.0 MHz	0.375" 9.52mm	32-122F 0-50C	Right Angle Microdot



*Right Angle Microdot - requires additional cable

Specifications

GENERAL

Size: Length 7.25" x Width 4.00" x Height 2.00" (184mm x 101.6mm x 50.8mm)

Weight: 1.15 lbs (.52 kg) with internal Li-Ion battery, 1.0 lb. (.45 kg) with optional Alkaline tray including 3 AA batteries

Temperature (gage operating): -4 to 122F (-20 to 50C)

Package: Designed for IP67 rating, custom, splash-proof, high impact plastic with illuminating rubber keypad for go/no-go testing

Transducer Connector Type: Lemo 00 (2 qty)

Bandwidth: 0.5-30 Mhz (-3dB)

Measurement Rate: 4 Hz or 25 Hz.

Pulser: 150V, Square Wave

Range: Thickness range depends on gage type, probe selection and material conditions. Typical range in corrosion mode, .020 - 23" (.076 - 584 mm). Typical range in precision mode, .006-23" (.152 -584 mm) in steel, as low as .003" (.076 mm) in plastic

Calibration: Cal zero, Cal velocity, Two-point calibration or Auto Calibration performs a two-point calibration using a 5-step test block

Material Velocity Range: .0200 in/usec-.7362 in/ μ S (0.508-18.699 mm/ μ S)

Languages: English, French, German, Spanish, Italian, Russian, Czech, Finnish, Chinese, Japanese, Hungarian

Batteries: Standard 3.7 V Li Ion internally rechargeable battery (11-27 hours; Standard mode of 4Hz and 74% brightness: 27 hour continuous operation, Fast mode at 25Hz, continuous measurements in echo to echo mode: 11 hours) or optional alkaline tray for 3 AA batteries

Shut off: selectable auto shut off 1-31 min. or never shut off

Transport case: Hard Plastic with high density molded foam cut out for gage and most accessories

Certifications: CE certified, RHOS compliant, designed for IP67

Standard Inclusions: ECHO series ultrasonic thickness gage, a transducer (ECHO 9 - DKS-537, ECHO 7,8 - choice of transducer up to 10mhz), transducer cable, 2oz bottle of couplant, operation manual, Data XL interface program, USB cable, Charger Adapter, Transport Case *A transducer is included with each model. Contact Danatronics for details based on exact inclusion per model

Warranty: Limited 2 year warranty under normal use on parts and labor for gage. Optional Dan-A-Care to add up to 3 more years

DISPLAY

Display: 3.5" high resolution color TFT display, 320 x 240 pixels (1/4 VGA), sunlight readable, including multiple color pallets

Backlight: Light Emitting Diode (LED) backlight. Includes variable light intensity.

DATALOGGER

Memory: Internal memory for stored setups standard on all models. For Datalogger models 2GB micro SD card standard and expandable up to 32GB

Stored Application Setups: Storage and recall of 2,700 calibration and set up files

Data XL: Interface program to send and receive stored readings, latest firmware and application set up files as two way communication from ECHO to computer (excel). Saved readings are .csv files and directly interfaces with Microsoft Excel.

USB: USB 2.0

MEASUREMENTS

Gain: Low, Standard, High, and Automatic Gain Control (AGC). 20-94 db in 1 db increments for gages with waveform.

Zoom: Automatically centers echos in the center of the display independent of material thickness

Units: English, Metric, Microseconds

Fast Min/Max: Displays minimum and maximum simultaneously with actual thickness at 25 Hz.

Alarms: Gage beeps and display changes color based on alarm condition

Vibrate: Gage can be set to vibrate on alarm (ideal for loud environments)

Transducers: Single, dual, delay lines, contact, immersion (depends on gage type)

ECHO 9 Measurement Types: ECHO 9 corrosion gage: Main bang to first backwall echo, echo to echo and velocity mode (displays acoustic sound speed based on entered thickness)

ECHO 7 & 8 Measurement Types: A precision gage: Class 1, Main bang to first back wall echo, Class 2, Interface echo to first backwall and Class 3, echo to echo after interface echo... Class 2 and 3 use high frequency single element delay lines or immersion probes, velocity mode (displays acoustic sound speed based on entered thickness)

Freeze Mode: Direct access to freeze display (ideal for high temperature applications)

Hold Mode: Holds display to retain last thickness reading

Differential Mode: Displays the difference from actual thickness measurement in absolute or percentage of a user entered reference value

Resolution: .001" or .010" (.01mm or .1mm) as corrosion gage and .0001" or .001" (.001mm or .01mm) as a precision gage

ACCESSORIES

ECHO-MBH: Magnetic ball head/pipe stand for ECHO series (attaches to 1/4x20 standard connection point on the back of the unit)

ECHO RB: Rubber boot available with padded wrist strap, 4 point chest harness, chest harness, built in bail (stand) with locking position and finger strap for easy one hand operation. ECHO RB is included with ECHO 7,8 or 9 as DLW models

ECHO-ABP: Alkaline Battery Pack (3- AA) for ECHO series. Battery life 3 Hours

ECHO-RPP: Remote Power Pack plugs into USB port to provide power/recharge to ECHO series

HARDWARE/SOFTWARE

Hardware Options: EZ Scan B-Scan encoder, Bluetooth, foot switch

Field Upgradeable Software Options: Datalogger with B-scan, Live waveform, Precision mode, Corrosion mode, Oxide scale, Angle Beam

Data XL Pro Software: allows sending of A and B-scan images to computer for advanced reporting

Item	SpecificatiOn	ECHO 9 Corrosion Gage				ECHO 7 Precision Gage				ECHO 8 Corrosion and Precision Gage			
		ECHO 9	9W	9 DL	9 DLW	ECHO 7	7W	7 DL	7 DLW	ECHO 8	8W	8 DL	8 DLW
Scan Mode	4 or 25 Hz. displays actual and min or max at same time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Memory	2 Gb micro SD included, expandable to 32 Gb	○	○	✓	✓	○	○	✓	✓	○	○	✓	✓
Alarms	Display color changes and can vibrate on alarm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Illuminating Keypad	Translucent F keys, red, yellow, green for alarm, blue for charging	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Velocity Mode	Displays material sound speed after entered known thickness	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Echo To Echo	Ignores coatings	✓	✓	✓	✓	*	*	*	*	✓	✓	✓	✓
Range	Can adjust range from zoom, 0.5, 1, 2.5, 10, 23"	○	✓	○	✓	○	✓	○	✓	○	✓	○	✓
Rectification	Half +, half -, full rf	○	○	○	✓	○	○	○	✓	○	○	○	✓
Live Waveform (A-Scan)	Displays live waveform	○	✓	○	✓	○	✓	○	✓	○	✓	○	✓
Datalogger	Alpha numeric 20 character ID, 32 character file, linear, 2d, 3d and boiler	○	○	✓	✓	○	○	✓	✓	○	○	✓	✓
B-Scan	Displays time based cross section of material under test	○	○	✓	✓	○	○	✓	✓	○	○	✓	✓
B-Scan Encoder	Displays encoded cross section of material under test	○	○	○	○	*	*	*	*	○	○	○	○
Dual Probe Use	Wide variety of dual transducers from 1 to 10 Mhz.	✓	✓	✓	✓	*	*	*	*	✓	✓	✓	✓
Single Element Probe	Wide variety of single element transducers from 1 to 20 Mhz	LTD	LTD	LTD	LTD	✓	✓	✓	✓	✓	✓	✓	✓
Stored Setups	Store up to 2,700 custom applications with file naming	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coating Thickness	Displays substrate and coating thickness simultaneously	○	✓	○	✓	○	✓	○	✓	○	✓	○	✓
Temperature Correction	Corrects for sound speed difference at elevated temperatures	○	✓	✓	✓	○	✓	✓	✓	○	✓	✓	✓
Alkaline Battery Tray	Ability to swap in 3 AA batteries	○	○	○	○	○	○	○	○	○	○	○	○
Rubber Boot	Custom rubber boot with built-in bail and 4 point chest harness	○	○	○	✓	○	○	○	✓	○	○	○	✓

*available with software upgrade to ECHO 8

○ = Software Options that are field upgradeable. Encoded B-Scan requires additional hardware modifications.

LTD = Limited, see transducer chart



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CL5

Ultrasonic Precision Thickness Gauge



Micrometer Precision in a Rugged Package

The CL5 is an easy-to-use precision thickness measuring solution for components used in the automotive and aerospace industries, such as:

- Cast and stamped metal components made of aluminum, steel, copper, bronze
- Machined workpieces
- Chemically milled components
- Metal strips, metal plates
- Plastics and composites
- Glass

The instrument can be held in one hand or placed on flat workpieces, making the CL5 a compact way to test your material for the required thickness or checking for sheet corrosion.



Compact Solution With a Full Range of Functionality

The CL5 precision thickness gauge offers a full range of functionality in an easy to use, compact and rugged package. Three soft keys directly under the display activate the functions shown on the display menus. Four directional keys help make menu changes and navigation of the text entry screen simple and efficient.

The graphical display presents the user with seven different operation modes. The user can select Normal, Minimum Scan, Maximum Scan, Differential/Rate of Reduction, Thk+A-Scan (option), Velocity (option) or Quality View. The CL5 uses a programmable data recorder for easy set up of data files from the PC. The SD Card memory system places all the data recording and set-up information on a removable SD memory card. The files are formatted allowing drag and drop files when plugged directly into the PC. Other data such as digital photographs can also be stored on the same SD card. The CL5 allows direct connection to the PC, using a serial or USB port (with optional cable).

Simple Operation

The CL5 is a very straightforward instrument to operate. The MODE key progresses the user through a series of selection and set-up menus and back to the measurement mode. One press of the MODE key displays a table of standard probes and up to five special set-ups. Another press of the MODE key displays a set-up menu where the user can easily scroll through the menu, see the current settings and make fast changes to any of the displayed settings.

A supervisor lock-out function enables a knowledgeable user to set up all the specific measuring functions and settings of the CL5 and lock the settings so critical settings cannot be changed by a subordinate user.

Additional advantages offered by this compact, multifunctional instrument include:

- Enhanced measurement performance produces stable and repeatable thickness values
- Seven measurement and display modes: Normal, Minimum Capture, Maximum Capture, Differential and Rate of Reduction, Velocity (with CL5 VL option), Thickness+A-Scan (with Live A-Scan Option) and Quality View Mode (with Data Recorder option).
- Snapshot A-Scan on all models
- Hollow/Fill thickness digits showing coupling or non-coupling status
- Visual LED alarm to alert user when measurements are exceeding the user selectable limit values
- Customer parameter set-ups for special configurations and quick instrument set-up
- Flexible power system via standard AA batteries or rechargeable battery pack system (standard)
- Multi-language user interface
- Automatic ultrasonic performance (gain and gate controls)
- Wide variety of standard probes (sold separately)

CL5—Simply reliable, reliably simple

The Velocity Option: Performance and Flexibility

The CL5 Velocity option gives the user an added measurement mode used for determining the velocity of a known thickness of material. Material thickness can be entered manually via the CL5 keyboard or a digital caliper can be connected, allowing the thickness value to be sent electronically from the caliper to the CL5. The user simply places the probe on the part, and the CL5 displays the material velocity of the test object. Both the thickness and the velocity value can be stored in the Data Recorder and downloaded to the PC.

The Live A-Scan Option

The optional Live A-Scan feature gives the user a real time view of the echoes being digitally measured by the CL5.

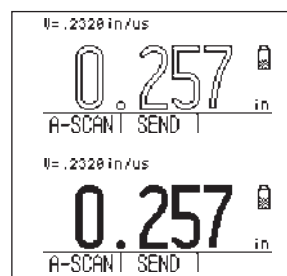
Viewing the Live A-Scan can aid users when attempting to properly align the probe and the test object to achieve the best measurement values. Viewing the Live A-Scan enables the user to ensure the proper echoes are being measured and the digital value is correct.

The Data Recorder Option

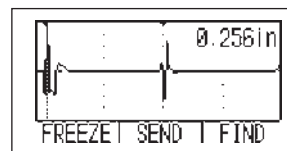
The Data Recorder option permits the quick and easy storage of thickness values in file form. Fully user-programmable, it stores up to 10,000 measured values or as many as 500 values with attached A-Scan.

The programmable data recorder allows creation of data recorder files directly from the CL5 keypad, or from the PC using the flexible UltraMATE® or UltraMATE® Lite software program. The Data Recorder supports the use of alphanumeric file names, standard linear and grid files and custom linear files.

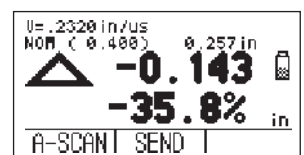
Extended file types store the thickness values, velocity settings and other critical data for each measurement point, making the CL5 and UltraMATE® ideal for test data management.



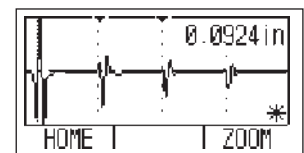
Filled digits indicate successful coupling



Live A-Scan for more precise evaluations



Rate of reduction



Snapshot A-Scan

PANEL 3579			
	A	B	C
1	0.0250	0.0248	0.0226
2	0.0217	0.0217	EMPTY
3	EMPTY	EMPTY	EMPTY
HOME SEND			

Data recorder

Achieve More Precision With Quality View

Quality View Mode permits Data Recorder-driven control and capture of thickness measurements. It is ideal for singular parts or structures with numerous measurement points that have different target thicknesses and/or varying upper and lower limits or tolerances.

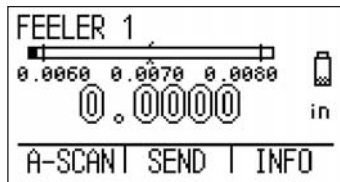
Uses of Quality View Mode include:

1. Fast collection of thickness measurement data for statistical analysis during variation control and quality assurance.
2. Digitally capturing thickness measurement data for quality records and traceability.
3. Variation control of work in progress on the manufacturing or workshop floor.

Quality View Mode displays the current measurement location name, a bar graphic of the thickness measurement that shows the lower specified limit value, the nominal/target value, the upper specified limit and a numerical readout of the measurement.

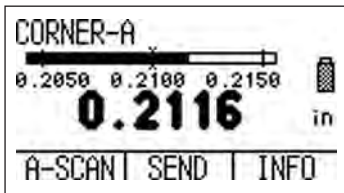


Selection of Quality View Mode displays

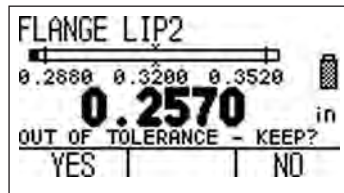


Numerical value of thickness is filled when probe is coupled to the location of measurement

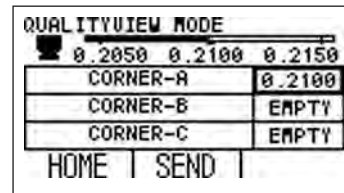
To work in Quality View Mode, custom four-point linear files are created in either Microsoft® Excel or UltraMate® software applications on a PC and downloaded to the CL5 using the optional serial or USB cable. Measurements can also be uploaded into a PC for processing and analysis using Microsoft® Excel, UltraMate® or a third party statistics and/or quality software application.



Quality View Mode



Out of tolerance dialogue



Measurement Review Mode

Technical Data

Measuring Range	.005 in to 20.00 in (0.13 mm to 500 mm); depends on material, probe, surface condition and temperature
Units and Measuring Resolution	Inch – 0.0001, 0.001, 0.01 Millimeter – 0.001, 0.01, 0.1
Material Velocity Range	0.03937 to 0.78736 in/ μ s 1000 to 19999 m/s
Receiver	Bandwidth of 1.0 to 16 MHz at –6 dB
Update Rate	User selectable 4 or 8 Hz, up to 32 Hz in Min Cap or Max Cap mode
Display Type	Graphical LCD 64 x 128 pixels 2.25 in x 2.56 in (40 mm x 57 mm) with backlight and adjustable contrast
Thickness Display	Five-digit display with 0.75 in (19.5 mm) height digits in standard mode and 0.25 in (6.35 mm) height digits in Thickness + A-Scan mode, solid or hollow digits coupling indicator, A-Scan view – R.F. mode only
Display Modes	Thickness (includes Snapshot A-Scan), Thickness + Live A-Scan (optional), Minimum Capture, Maximum Capture, Differential and Rate of Reduction, Velocity Mode (optional), Quality View Mode (optional)
Supervisor Lockout	Alphanumeric password lockout for calibrations, set-up and Data Recorder
I/O Port	Bi-directional serial RS-232: baud rate 1200, 9600, 57600 and 115200
Data Recorder	Programmable Data Recorder, 120 files max. on each 64 MB SD card
File Formats	Grid created from instrument keypad. Grid and Custom Linear files accepted from UltraMATE [®] software.
Power Supply	Three AA batteries (Alkaline, NiMH or NiCad) or custom rechargeable battery pack

Environmental Sealing	Impact resistant, dust and splash proof, gasket-sealed, case-tested to IP54
Weight	0.92 lb (420 g) with batteries
Size	7.1 in H x 3.7 in W x 1.8 in D (180 mm x 94 mm x 46 mm)
Temperature Range	Operating: –10 °C to +60 °C Storage: –20 °C to +70 °C
Operating Languages	English, German, French, Spanish, Italian, Russian, Japanese, Chinese
Application Software	UltraMATE [®] Lite and UltraMATE [®]
Base Instrument Package	CL5 precision thickness gauge Lithium poly battery pack AC power supply Plastic carry case Wire stand XL couplant sample, 4 oz Firmware upgrade CD-ROM Operating manual Operating instruction card Certificate of Conformity
Options	CL5 AS OPT – Live A-Scan option CL5 DR OPT – Data Recorder option CL5 VL – Velocity option
Accessories	PCCBL-690 USB PC cable PCCBL-419 serial PC cable Li-135 lithium poly battery pack AC-296 AC power supply UltraMATE [®] Lite or UltraMATE [®] Data Management software

CL5 Compatible Transducer Specifications

Model	Probe Type	Nominal Frequency	Contact Diameter	Measuring Range (in Mild Steel Unless Noted)
Alpha 2 DFR/CLF4	Standard Delay Line	15 MHz	0.30 in (7.6 mm)	0.007 to 1.0 in (0.18 to 25.4 mm)
Alpha 2 F/CLF5	Fingertip Contact	10 MHz	0.38 in (9.5 mm)	0.060 to 10.0 in (1.52 to 254 mm)
Mini DFR	Thin Range Delay Line	20 MHz	0.19 in (4.8 mm)	0.006 to 0.2 in (0.16 to 5.1 mm)
Alpha DFR-P	Delay Line for Plastic Materials	22 MHz	0.30 in (7.6 mm)	0.005 to 0.15 in (0.13 to 3.8 mm) in plastic materials
K-Pen	Delay Line Pencil Probe	20 MHz	0.065 or 0.090 in (1.7 or 2.3 mm)	0.008 to 0.175 in (0.20 to 4.4 mm)
CA211A	Standard Contact	5 MHz	0.75 in (19.1 mm)	0.060 to 20.0 in (1.52 to 508 mm)



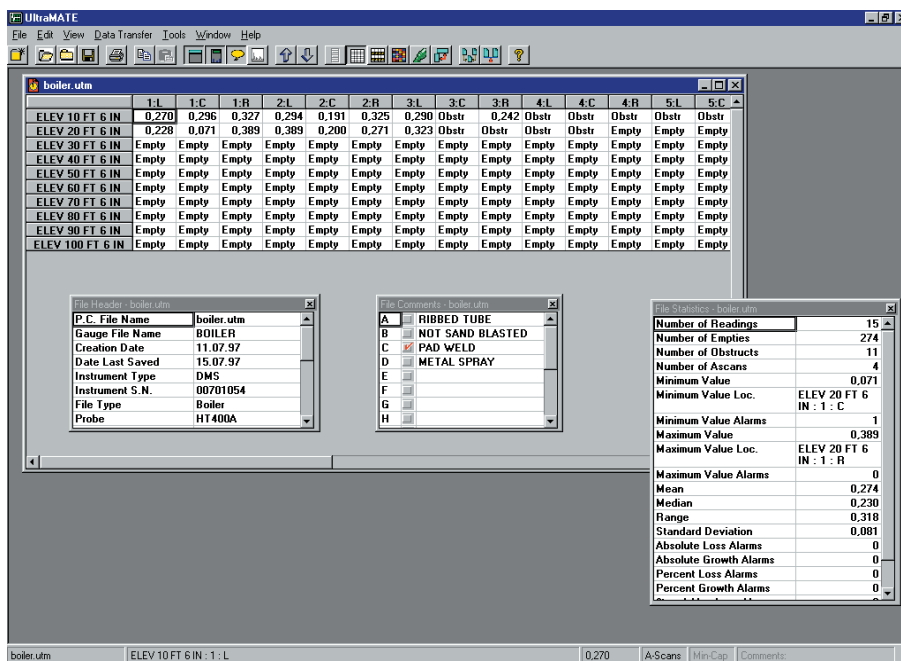
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Krautkramer UltraMATE / UltraMATE lite

Documentation programs for the wall thickness measurement



Features of UltraMATE

Generation of color reports including various possibilities for analyses:

- for example, color histograms: measured values are divided into ranges which have certain colors assigned to them for the range evaluation. The number of readings in each one of the defined value ranges is indicated - either as an absolute number or as percentage of total.
- color assignments also clearly show the distribution of minimum/maximum limit values exceeded or not reached for individual or several measurement series over a certain time period
- comparison of several measurement data sets on the screen
- merging of up to five different measurement data sets into one single file
- data compatibility with UltraPIPE and older DMS MATE files
- Viewing of attached A-Scan, B-Scan and Microgrids (when supported by the instrument)

UltraMATE is an easy-to-use program for the management of thickness measurement data. It ensures transfer, storage, analysis and documentation of the data, and it makes extensive user-friendly functions available - for example for professional test report layouts.

UltraMATE lite is the simplified program version enabling to transfer data from the gauge to the PC, store them there, and to print them out in different fixed-format reports.

Features of UltraMATE lite

- automatic communication setup
- data exchange via Windows Clipboard for an easy transfer of measurement data to spreadsheet and word processing applications
- File creation wizard supporting 6 different file types (8 file types in UltraMATE)
- Parameter Set transfer to and from DMS, DMS 2, CL 400 and CL 5 instruments

