

## 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.



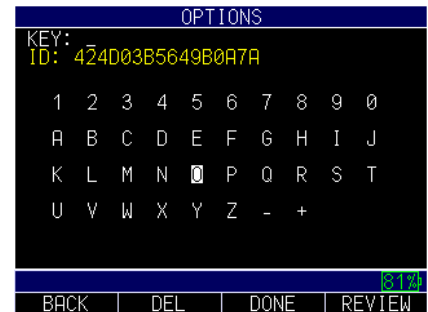
# ECHO Series Standard Features

- 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  $\mu$ 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

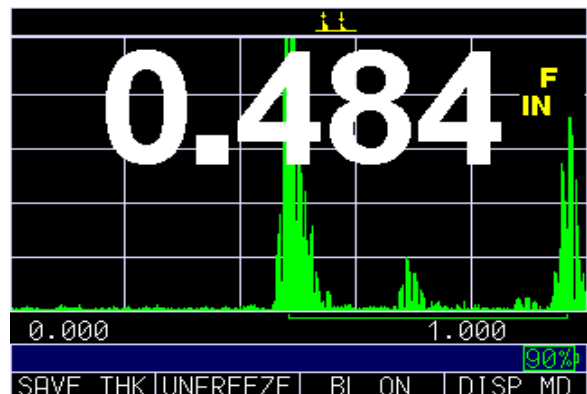
- Boiler tubes
- Pressure vessels
- Storage tanks
- Ship hulls
- Pipes
- Steel beams on bridges

## 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

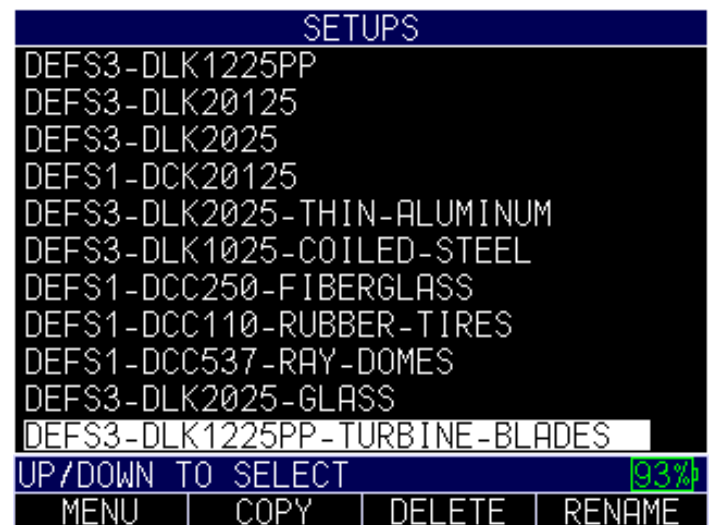
# ECHO 7 Precison Thickness Gage

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

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.



Easy to hold and operate in one hand

## 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](http://www.danatronics.com))
- Send Bit Maps (screen shots) to further document your inspections

LINEAR - Excel

File Home Insert Draw Page Layout Formulas Data Review View Tell me what you want to do

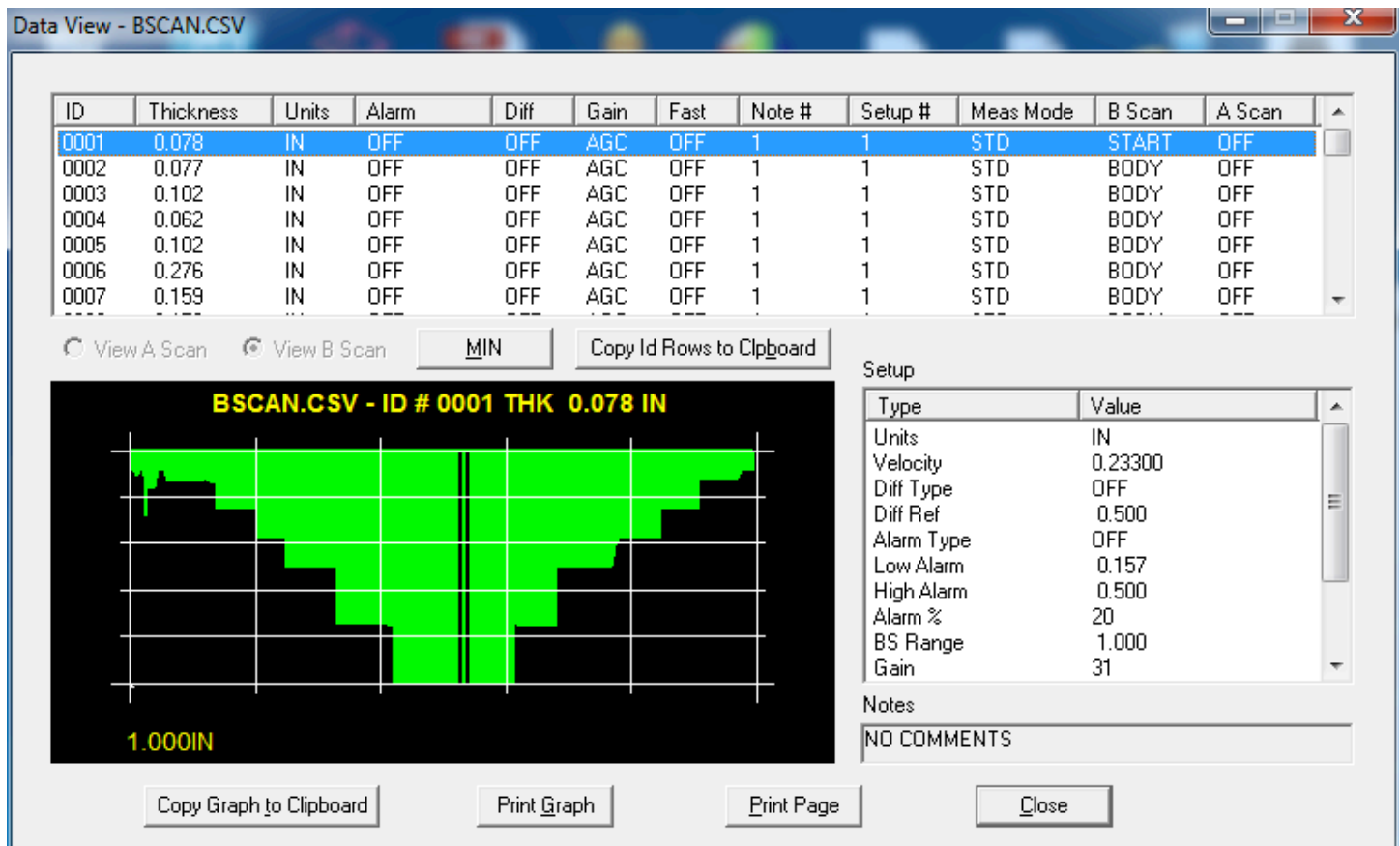
A2 Filename

|    | A                    | B               | C       | D         | E       | F    | G       | H       | I       | J              | K          | L      | M |
|----|----------------------|-----------------|---------|-----------|---------|------|---------|---------|---------|----------------|------------|--------|---|
| 1  | Product:             | Version:        |         |           |         |      |         |         |         |                |            |        |   |
| 2  | Filename:            | Type            | Version | Start Col | End Col | # ID | # Setup | # Notes | Created | Last Saved     |            |        |   |
| 3  | .csv                 | LINEAR          | 1       | 1         | 1       | 5000 | 5000    | 1       | 16      | 1/21/2014 0:29 | 0/0/-20:00 |        |   |
| 4  |                      |                 |         |           |         |      |         |         |         |                |            |        |   |
| 5  | DESCRIPTION:         |                 |         |           |         |      |         |         |         |                |            |        |   |
| 6  | LOCATION:            |                 |         |           |         |      |         |         |         |                |            |        |   |
| 7  | INSPECTOR ID:        |                 |         |           |         |      |         |         |         |                |            |        |   |
| 8  |                      |                 |         |           |         |      |         |         |         |                |            |        |   |
| 9  | ID                   | Thickness Units |         | Alarm     | Diff    | Gain | Fast    | Note #  | Setup # | Meas Mode      | B Scan     | A Scan |   |
| 10 | 1                    | 0.074 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 11 | 2                    | 0.176 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 12 | 3                    | 0.278 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 13 | 4                    | 0.381 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 14 | 5                    | 0.482 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 15 | 6                    | 0.584 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 16 | 7                    | 0.686 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 17 | 8                    | 0.788 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 18 | 9                    | 0.890 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 19 | 10                   | 0.992 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | OFF    |   |
| 20 |                      |                 |         |           |         |      |         |         |         |                |            |        |   |
| 21 | ID                   | Thickness Units |         | Alarm     | Diff    | Gain | Fast    | Note #  | Setup # | Meas Mode      | B Scan     | A Scan |   |
| 22 | 11                   | 0.381 IN        |         | OFF       | OFF     | AGC  | OFF     |         |         | 0 E TO E       | OFF        | ON     |   |
| 23 | Max Data [275][0][s] |                 |         |           |         |      |         |         |         |                |            |        |   |
| 24 | 0                    | 1               | 1       | 2         | 2       | 1    | 2       |         |         | 1              | 1          | 1      |   |
| 25 | 1                    | 1               | 1       | 1         | 1       | 1    | 2       | 2       |         | 1              | 2          | 1      |   |
| 26 | 1                    | 1               | 3       | 1         | 2       | 2    | 3       |         |         | 1              | 1          | 1      |   |
| 27 | 1                    | 4               | 1       | 1         | 1       | 1    | 2       |         |         | 3              | 4          | 2      |   |
| 28 | 2                    | 1               | 1       | 1         | 1       | 3    | 1       | 2       |         | 2              | 2          | 1      |   |
| 29 | 2                    | 1               | 2       | 1         | 2       | 1    | 2       |         |         | 1              | 3          | 2      |   |
| 30 | 1                    | 1               | 2       | 2         | 2       | 2    | 1       | 2       |         | 1              | 1          | 1      |   |
| 31 | 2                    | 1               | 1       | 1         | 1       | 1    | 1       | 2       |         | 1              | 1          | 1      |   |
| 32 | 1                    | 1               | 1       | 1         | 1       | 1    | 1       | 2       |         | 1              | 1          | 1      |   |

LINEAR

Ready

Search the web and Windows



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<br>-20 to 509C | Straight Microdot<br>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<br>-20 to 509C | Right Angle Microdot<br>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"<br>(2.54mm - 508mm) | n/a                    | n/a                    | n/a              | 2.25 MHz | 0.500"<br>12.7mm  | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-525    | 0.040"-20"<br>(1mm-508mm)      | n/a                    | n/a                    | n/a              | 5.0 MHz  | 0.250"<br>6.35mm  | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-537    | 0.040"-20"<br>(1mm-508mm)      | n/a                    | n/a                    | n/a              | 5.0 MHz  | 0.375"<br>9.52mm  | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-550    | 0.080"-20"<br>(2mm - 508mm)    | n/a                    | n/a                    | n/a              | 5.0 MHz  | 0.500"<br>12.7mm  | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-718    | 0.030"-10"<br>(.76mm - 254mm)  | n/a                    | n/a                    | n/a              | 7.5 MHz  | 0.187"<br>4.75mm  | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-1025   | 0.020"-2"<br>(.5mm - 50.8mm)   | n/a                    | n/a                    | n/a              | 10.0 MHz | 0.25"<br>6.35mm   | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-1025HR | 0.020"-1"<br>(.5mm - 25.4mm)   | n/a                    | n/a                    | n/a              | 10.0 MHz | 0.25"<br>6.35mm   | 32-392F<br>0-200C | Right Angle Microdot |
| 7, 8       | DCK-20125  | 0.016"-1"<br>(.4mm - 25.4mm)   | n/a                    | n/a                    | n/a              | 20.0 MHz | 0.125"<br>3.175mm | 32-392F<br>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"<br>(7.62mm - 508mm) | n/a                    | n/a                    | n/a              | 1.0 MHz    | 1"<br>25.4mm      | 10-160F<br>-12-70C | Right Angle Microdot |
| 7, 8       | DCC-175  | 0.300"-20"<br>(7.62mm - 508mm) | n/a                    | n/a                    | n/a              | 1.0 MHz    | 0.750"<br>19.05mm | 10-160F<br>-12-70C | Right Angle Microdot |
| 7, 8       | DCC-250  | 0.100"-20"<br>(2.54 - 508mm)   | n/a                    | n/a                    | n/a              | 2.25.0 MHz | 0.500"<br>12.7mm  | 10-160F<br>-12-70C | Right Angle Microdot |
| 7, 8       | DCC-537  | 0.040"-20"<br>(1mm-508mm)      | n/a                    | n/a                    | n/a              | 5.0 MHz    | 0.375"<br>9.52mm  | 10-160F<br>-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"<br>(2mm-19mm)   | 0.025-0.500"<br>(6.35mm - 12.7mm)  | 0.020"-0.375"<br>(0.5mm - 9.5mm)   | 0.025" - 0.400"<br>(0.635mm-10.16mm) | 0.010"-0.150"<br>(0.254mm-3.81mm)   | 5.0 MHz  | 0.25"<br>6.35mm         | 32-122F<br>0-50C  | Right Angle Microdot |
| 7, 8, 9    | DLK-1025      | 0.080"-0.750"<br>(2mm-19mm)   | 0.020"-0.500"<br>(0.5mm - 12.7mm)  | 0.015"-0.375"<br>(0.38mm - 9.5mm)  | 0.025" - 0.400"<br>(0.635mm-10.16mm) | 0.010"-0.150"<br>(0.254mm-3.81mm)   | 10.0 MHz | 0.25"<br>6.35mm         | 32-122F<br>0-50C  | Right Angle Microdot |
| 7, 8, 9    | DLK-1225PP-SM | 0.080"-0.300"<br>(2mm-7.62mm) | 0.020"-0.200"<br>(0.5mm - 5.08mm)  | 0.015"-0.125"<br>(0.38mm - 5.08mm) | 0.020" - 0.200"<br>(0.508mm-5.08mm)  | 0.015"-0.060"<br>(0.15mm - 1.52mm)  | 12.0 MHz | 0.080"<br>2mm (tip dia) | 32-122F<br>0-50C  | Right Angle Microdot |
| 7, 8, 9    | DLK-1225PP-RM | 0.080"-0.300"<br>(2mm-7.62mm) | 0.020"-0.200"<br>(0.5mm - 5.08mm)  | 0.015"-0.125"<br>(0.38mm - 5.08mm) | 0.020" - 0.200"<br>(0.508mm-5.08mm)  | 0.015"-0.060"<br>(0.15mm - 1.52mm)  | 12.0 MHz | 0.080"<br>2mm (tip dia) | 32-122F<br>0-50C  | Right Angle Microdot |
| 7, 8       | DLK-2025      | n/a                           | 0.015"-0.300"<br>(3.81mm - 7.62mm) | 0.006"-0.200"<br>(0.152mm- 7.62mm) | n/a                                  | 0.003"-0.100"<br>(0.076mm - 2.54mm) | 20 MHz   | 0.25"<br>6.35mm         | 32-122F<br>0-50C  | Right Angle Microdot |
| 7, 8       | DLK-20125     | n/a                           | 0.015"-0.200"<br>(3.81mm - 7.62mm) | 0.006"-0.200"<br>(0.152mm- 7.62mm) | n/a                                  | 0.003"-0.100"<br>(0.076mm - 2.54mm) | 20 MHz   | 0.125"<br>3.175mm       | 32-122F<br>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"<br>(1mm - 12.7mm) | 0.030"-0.375"<br>(0.762mm-9.5mm) | 0.020"-0.200"<br>(0.5mm - 5.08mm) | 5.0 MHz | 0.375"<br>9.52mm | 32-122F<br>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/  $\mu$ S (0.508-18.699 mm/  $\mu$ 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<br>Corrosion Gage |     |      |       | ECHO 7<br>Precision Gage |    |      |       | ECHO 8<br>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 |
| <b>Scan Mode</b>              | 4 or 25 Hz. displays actual and min or max at same time                     | ✓                        | ✓   | ✓    | ✓     | ✓                        | ✓  | ✓    | ✓     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Memory</b>                 | 2 Gb micro SD included, expandable to 32 Gb                                 | ○                        | ○   | ✓    | ✓     | ○                        | ○  | ✓    | ✓     | ○                                      | ○  | ✓    | ✓     |
| <b>Alarms</b>                 | Display color changes and can vibrate on alarm                              | ✓                        | ✓   | ✓    | ✓     | ✓                        | ✓  | ✓    | ✓     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Illuminating Keypad</b>    | Translucent F keys, red, yellow, green for alarm, blue for charging         | ✓                        | ✓   | ✓    | ✓     | ✓                        | ✓  | ✓    | ✓     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Velocity Mode</b>          | Displays material sound speed after entered known thickness                 | ✓                        | ✓   | ✓    | ✓     | ✓                        | ✓  | ✓    | ✓     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Echo To Echo</b>           | Ignores coatings  | ✓                        | ✓   | ✓    | ✓     | *                        | *  | *    | *     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Range</b>                  | Can adjust range from zoom, 0.5, 1, 2.5, 10, 23"                            | ○                        | ✓   | ○    | ✓     | ○                        | ✓  | ○    | ✓     | ○                                      | ✓  | ○    | ✓     |
| <b>Rectification</b>          | Half +, half -, full rf   | ○                        | ○   | ○    | ✓     | ○                        | ○  | ○    | ✓     | ○                                      | ○  | ○    | ✓     |
| <b>Live Waveform (A-Scan)</b> | Displays live waveform  | ○                        | ✓   | ○    | ✓     | ○                        | ✓  | ○    | ✓     | ○                                      | ✓  | ○    | ✓     |
| <b>Datalogger</b>             | Alpha numeric 20 character ID, 32 character file, linear, 2d, 3d and boiler | ○                        | ○   | ✓    | ✓     | ○                        | ○  | ✓    | ✓     | ○                                      | ○  | ✓    | ✓     |
| <b>B-Scan</b>                 | Displays time based cross section of material under test                    | ○                        | ○   | ✓    | ✓     | ○                        | ○  | ✓    | ✓     | ○                                      | ○  | ✓    | ✓     |
| <b>B-Scan Encoder</b>         | Displays encoded cross section of material under test                       | ○                        | ○   | ○    | ○     | *                        | *  | *    | *     | ○                                      | ○  | ○    | ○     |
| <b>Dual Probe Use</b>         | Wide variety of dual transducers from 1 to 10 Mhz.                          | ✓                        | ✓   | ✓    | ✓     | *                        | *  | *    | *     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Single Element Probe</b>   | Wide variety of single element transducers from 1 to 20 Mhz                 | LTD                      | LTD | LTD  | LTD   | ✓                        | ✓  | ✓    | ✓     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Stored Setups</b>          | Store up to 2,700 custom applications with file naming                      | ✓                        | ✓   | ✓    | ✓     | ✓                        | ✓  | ✓    | ✓     | ✓                                      | ✓  | ✓    | ✓     |
| <b>Coating Thickness</b>      | Displays substrate and coating thickness simultaneously                     | ○                        | ✓   | ○    | ✓     | ○                        | ✓  | ○    | ✓     | ○                                      | ✓  | ○    | ✓     |
| <b>Temperature Correction</b> | Corrects for sound speed difference at elevated temperatures                | ○                        | ✓   | ✓    | ✓     | ○                        | ✓  | ✓    | ✓     | ○                                      | ✓  | ✓    | ✓     |
| <b>Alkaline Battery Tray</b>  | Ability to swap in 3 AA batteries   | ○                        | ○   | ○    | ○     | ○                        | ○  | ○    | ○     | ○                                      | ○  | ○    | ○     |
| <b>Rubber Boot</b>            | 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



**Stroud Systems, Inc.**  
**600 North Shepherd Drive, Suite 115**  
**Houston, TX 77007-1324**

**713-861-3270**

**sales@stroudsystems.com**

Danatronics Corporation, 150A Andover St., Suite 8C, Danvers, MA 01923