USER'S MANUAL

EVIDENT™

35RDC

Ultrasonic Precision Thickness Gauge

Part No. 910-268-EN [U8778320]

Rev. F

September 2022

This instruction manual contains essential information on how to use this Evident product safely and effectively. Before using this product, thoroughly review this instruction manual. Use the product as instructed. Keep this instruction manual in a safe, accessible location.

EVIDENT SCIENTIFIC INC.,
48 Woerd Avenue, Waltham, MA 02453, USA

This document was prepared with particular attention to usage to ensure the accuracy of the information contained therein, and corresponds to the version of the product manufactured prior to the date appearing on the title page. There could, however, be some differences between the manual and the product if the product was modified thereafter.

The information contained in this document is subject to change without notice.

Printed in the United States of America.

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Important Information

Intended Use

The 35RDC is a simple Go/No-Go ultrasonic instrument designed to detect subsurface defects caused by impact damage on solid laminate aircraft composite and other composite structures.

The 35RDC ultrasonic gauge is designed and manufactured as a precision instrument. Under normal operating conditions, the gauge will provide long, trouble-free service.

WARNING

Do not use the 35RDC for any purpose other than its intended use. It must never be used to inspect or examine human or animal body parts.

Instruction Manual

This instruction manual contains essential information on how to use this Evident product safely and effectively. Before using this product, thoroughly review this instruction manual. Use the product as instructed.

Keep this instruction manual in a safe, accessible location.

Instrument Compatibility

CAUTION

Always use equipment and accessories that meet Evident specifications. Using incompatible equipment could cause equipment malfunction and/or damage, or human injury.

Repair and Modification

The 35RDC does not contain any user-serviceable parts. Opening the instrument might void the warranty.

CAUTION

In order to prevent human injury and/or equipment damage, do not disassemble, modify, or attempt to repair the instrument.

Safety Symbols

General warning symbol

This symbol is used to alert the user to potential hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm or material damage.

 Shock hazard caution symbol
This symbol is used to alert the user to potential electric shock hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm.

Safety Signal Words

The following safety symbols might appear in the documentation of the instrument:

 **DANGER**
The DANGER signal word indicates an imminently hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to will result in death or serious personal injury. Do not proceed beyond a danger signal word until the indicated conditions are fully understood and met.

 **WARNING**
The WARNING signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to could result in death or serious personal injury. Do not proceed beyond a warning signal word until the indicated conditions are fully understood and met.

CAUTION

The CAUTION signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to may result in minor or moderate personal injury, material damage, particularly to the product, destruction of part or all of the product, or loss of data. Do not proceed beyond a caution signal word until the indicated conditions are fully understood and met.

Note Signal Words

The following symbols could appear in the documentation of the instrument:

IMPORTANT

The IMPORTANT signal word calls attention to a note that provides important information, or information essential to the completion of a task.

NOTE

The NOTE signal word calls attention to an operating procedure, practice, or the like, which requires special attention. A note also denotes related parenthetical information that is useful, but not imperative.

TIP

The TIP signal word calls attention to a type of note that helps you apply the techniques and procedures described in the manual to your specific needs, or provides hints on how to effectively use the capabilities of the product.

Warnings

WARNING

General Warnings

- Carefully read the instructions contained in this instruction manual prior to turning on the instrument.
- Keep this instruction manual in a safe place for further reference.
- Follow the installation and operation procedures.
- It is imperative to respect the safety warnings on the instrument and in this instruction manual.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment could be impaired.
- Do not install substitute parts or perform any unauthorized modification to the instrument.
- Service instructions, when applicable, are for trained service personnel. To avoid the risk of electric shock, do not perform any work on the instrument unless qualified to do so. For any problem or question regarding this instrument, contact Evident or an authorized Evident representative.
- Do not touch the connectors directly by hand. Otherwise, a malfunction or electric shock may result.
- Do not allow metallic or foreign objects to enter the device through connectors or any other openings. Otherwise, a

malfunction or electric shock may result.

Equipment Disposal

Before disposing of the 35RDC, check your local laws, rules, and regulations, and follow them accordingly.

CE (European Community)

This device complies with the requirements of directive 2014/30/EU concerning electromagnetic compatibility, directive 2014/35/EU concerning low voltage, and directive 2015/863 which amends 2011/65/EU concerning restriction of hazardous substances (RoHS). The CE marking indicates compliance with the above directives.

UKCA (United Kingdom)

This device complies with the requirements of the Electromagnetic Compatibility Regulations 2016, the Electrical Equipment (Safety) Regulations 2016, and the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. The UKCA marking indicates compliance with the above regulations.

WEEE Directive

In accordance with European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE), this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately. Refer to your local Evident distributor for return and/or collection systems available in your country.

China RoHS

China RoHS is the term used by industry generally to describe legislation implemented by the Ministry of Information Industry (MII) in the People's Republic of China for the control of pollution by electronic information products (EIP).

The China RoHS mark indicates the product's Environment-Friendly Use Period (EFUP). The EFUP is defined as the number of years for which listed controlled substances will not leak or chemically deteriorate while in the product. The EFUP for the 35RDC has been determined to be 15 years.
Note: The Environment-Friendly Use Period (EFUP) is not meant to be interpreted as the period assuring functionality and product performance.

"中国 RoHS" 是一个工业术语，一般用于描述中华人民共和国信息工业部 （MII） 针对控制电子信息产品 （EIP）的污染所实行的法令。

电气电子产品
有害物质
限制使用标识

中国 RoHS 标识是根据“电器电子产品有害物质限制使用管理办法”以及“电子电气产品有害物质限制使用标识要求”的规定，适用于在中国销售的电气电子产品上的电气电子产品有害物质限制使用标识。

注意：电气电子产品有害物质限制使用标识内的数字为在正常的使用条件下有害物质不会泄漏的年限，不是保证产品功能性的年限。

产品中有害物质的名称及含量

部件名称		有害物质					
		铅及其化合物 (Pb)	汞及其化合物 (Hg)	镉及其化合物 (Cd)	六价铬及其化合物 (Cr(Ⅵ))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
主体	机构部件	×	○	○	○	○	○
	光学部件	×	○	○	○	○	○
	电气部件	×	○	○	○	○	○
附件		×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T26572 规定的限量要求以下。

×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T26572 规定的限量要求。

Korea Communications Commission (KCC)

이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다 .

EMC Directive Compliance

This equipment generates and uses radio-frequency energy and, if not installed and used properly (that is, in strict accordance with the manufacturer's instructions), may cause interference. The 35RDC has been tested and found to comply with the limits for an industrial device in accordance with the specifications of the EMC directive.

FCC (USA) Compliance

NOTE

This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy, and if

not installed and used in accordance with the instruction manual, might cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the product.

FCC Supplier's Declaration of Conformity

Hereby declares that the product,

Product name: 35RDC
Model: 35RDC

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107 and Section 15.109.

Supplementary information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

Responsible party name:

EVIDENT SCIENTIFIC INC.

Address:

48 Woerd Avenue, Waltham, MA 02453, USA

Phone number:

+1 781-419-3900

ICES-001 (Canada) Compliance

This Class A digital apparatus complies with Canadian ICES-001.

Cet appareil numérique de la classe A est conforme à la norme NMB-001 du Canada.

Regulatory Information

The 35RDC may display a regulatory screen that lists the specific regulation with which it complies.

To view the REGULATORY screen

1. In the measurement screen, press **[SETUP]**, and then select **SP MENU**.
2. In the **SP MENU**, select **REGULATORY** to display the **REGULATORY** screen (see Figure i-1 on page 16).

Figure i-1 The REGULATORY screen

3. Use the up and down arrow keys to scroll through the different **REGULATORY** screens.
4. Press **[MEAS]** to return to the measurement screen.

Warranty Information

Evident guarantees your Evident product to be free from defects in materials and workmanship for a specific period, and in accordance with conditions specified in the *Evident Scientific Inc. Terms and Conditions* available at https://www.olympus-ims.com/en/terms/.

The Evident warranty only covers equipment that has been used in a proper manner, as described in this instruction manual, and that has not been subjected to excessive abuse, attempted unauthorized repair, or modification.

Inspect materials thoroughly on receipt for evidence of external or internal damage that might have occurred during shipment. Immediately notify the carrier making the delivery of any damage, because the carrier is normally liable for damage during shipment. Retain packing materials, waybills, and other shipping documentation needed in order to file a damage claim. After notifying the carrier, contact Evident for assistance with the damage claim and equipment replacement, if necessary.

This instruction manual explains the proper operation of your Evident product. The information contained herein is intended solely as a teaching aid, and shall not be used in any particular application without independent testing and/or verification by the operator or the supervisor. Such independent verification of procedures becomes increasingly important as the criticality of the application increases. For this reason, Evident makes no warranty, expressed or implied, that the techniques, examples, or procedures described herein are consistent with industry standards, nor that they meet the requirements of any

particular application.

Evident reserves the right to modify any product without incurring the responsibility for modifying previously manufactured products.

Technical Support

Evident is firmly committed to providing the highest level of customer service and product support. If you experience any difficulties when using our product, or if it fails to operate as described in the documentation, first consult the user's manual, and then, if you are still in need of assistance, contact our After-Sales Service. To locate the nearest service center, visit the Service Centers page on the Evident Scientific Web site.

Revision History

Publication dates are updated when a change is made to the document. In addition, the document number is also changed to reflect the revision. Table 1 on page 18 shows a list of revisions for this document.

Table 1: Revision History

Date	Part Number	Release Version
June 2008	910-268-EN	Revision A
August 2008	910-268-EN	Revision B
February 2009	910-268-EN	Revision C
November 2016	910-268-EN	Revision D
January 2022	910-268-EN	Revision E
September 2022	910-268-EN	Revision F

1 General Information

The 35RDC is a simple Go/No-Go ultrasonic instrument designed to detect subsurface defects caused by impact damage on solid laminate aircraft composite and other composite structures.

The 35RDC features a backlit LCD that displays the word **GOOD** if no subsurface damage is found or **BAD** when it detects subsurface damage. It uses an ultrasonic transducer that can be placed or scanned on the area of composite material suspected of having impact damage.

CAUTION

The 35RDC should be used only on solid laminate structures from 0.64 mm to 22.86 mm (0.025 in. to 0.900 in.). Do not use the 35RDC on honeycomb structures, metal structures, or small parts.

CAUTION

The 35RDC manual describes the basic general operation of the instrument. It does not describe how the instrument should be used for any particular composite inspection. When using the 35RDC, users must make sure they have been trained for any particular inspection and are following the recommended inspection procedures outlined in the Service or Repair manual provided by the component or aircraft manufacturer.

Weighing only 241 g (8.5 oz.) and featuring a simplified keypad, this rugged ultrasonic instrument is easy to operate.

Other 35RDC features include:

- Thickness range: 0.64 mm to 22.86 mm (0.025 in. to 0.900 in.), depending on material and transducer
- Backlit display
- Deviation alarm set points
- Long battery life
- Rugged case and sealed, color-coded keypad
- Semiautomatic keyboard calibration
- Internal self-test modes
- Advanced user modes with live waveform

CAUTION

The 35RDC Ramp Damage Checker is a basic ultrasonic instrument that incorporates a display where a clear indication of "Good" or "Bad" will be presented to the user during measurement. It is possible to get a "Good" indication and incorrectly release an airplane for service if the user does not have the correct training. Authority for releasing an airplane comes from the inspector, not from the 35RDC Ramp Damage Checker. Because of this, you must complete a training class with the Ramp Damage Checker before you use it on an airplane.

2 Basic Operation

This section demonstrates how to make basic measurements with a 35RDC. When it is shipped, the instrument contains the default setup for the transducer you have purchased. Many default parameters can be changed once you become familiar with the more sophisticated features of the gauge.

2.1 Initial Setup

Follow the initial setup procedure when operating the gauge for the first time, in addition to using the default settings for the gauge.

To begin the initial setup

Step 1: Connect the transducer cable to the transducer connector located on the top panel of the 35RDC.

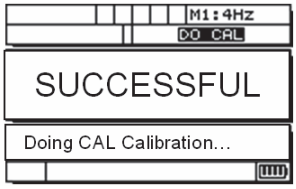
Step 2: Connect the transducer to the other end of the cable.

Step 3: Press the **[ON/OFF]** key to turn on the gauge.

Step 4: Approximately 3 seconds after the gauge is turned on, the following screen appears:

Step 5: Find a **GOOD** area next to the visible discrepancy on the airplane or composite structure for calibration. The area should be far enough away so that you are not calibrating on a delamination. 76.2 mm to 152.4 mm (3 in. to 6 in.) is usually sufficient.

Step 6: Apply ultrasonic couplant to the **GOOD** area, place the probe on the surface, and then press the **CAL** button.
The unit displays one of two messages: **Successful** (the calibration completed properly) or **CAL FAIL** (the unit could not obtain a proper ultrasonic backwall signal).



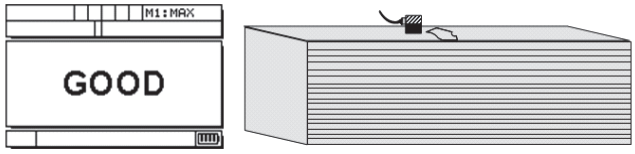
NOTE

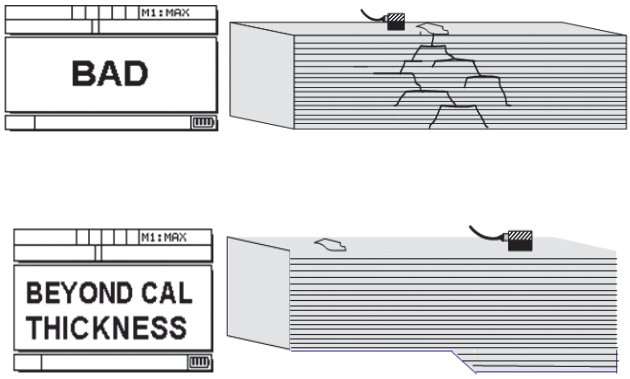
In a **CAL FAIL** condition, reapply couplant, recouple with the area, and then press the **CAL** key again. A unit that does not calibrate may be an indication that the transducer cable is defective, the transducer is not functioning properly, or the calibration area is outside the measurement range of the instrument.

If the calibration is successful, the gauge displays Successful, and then displays **GOOD** while coupled to the calibrated location. The gauge always display **BAD** when it is not properly coupled to the sample.

Step 7: Scan in a straight line from the calibration area toward the visible discrepancy.

Step 8: Note the instrument reading over the area of suspected damage.
If the display continues to show **GOOD**, there is no damage below the surface. If the display shows **BAD**, there may be damage present. If the transducer is scanned over an area of greater thickness than the calibration point, the gauge displays **BEYOND CAL THICKNES**S.





CAUTION

Call a trained nondestructive testing technician if you get confusing readings or indications of subsurface damage (delamination).

2.2 Low Battery

The gauge operates for a minimum of 150 hours on one set of three AA alkaline batteries (under normal conditions; backlight off). The battery symbol at the lower-right corner of the display indicates the remaining battery life.

2.3 Replacing the Batteries

The battery door of the 35RDC gauge allows you to quickly access the battery compartment. Turn the unit so that its back faces towards you. Unscrew the captive screw of the battery door and remove the battery compartment door. Remove the depleted AA batteries. Replace the depleted batteries with three AA sized alkaline or NiMH rechargeable batteries, place back the battery door, and then tighten the battery door screw. Always dispose of batteries properly as required by your local regulations.

3 Additional 35RDC Features

The 35RDC ultrasonic gauge has several other convenient features. You do not need to use these features for basic operations. However, they increase the versatility of the gauge. The following additional features may be accessed directly through the keypad:

- Backlight
- LCD contrast adjustment

3.1 Backlight

The display backlight feature internally illuminates the LCD with a bright, uniform light. This allows the display, which has excellent visibility under normal to high ambient light conditions, to be viewed in low to zero ambient light conditions.

To switch the backlight on or off

Step 1: Press the **[Light Bulb]** key.

3.2 Display Contrast Adjustment

The contrast adjustment feature allows you to adjust the 35RDC gauge's display contrast (light or dark).

To adjust the display contrast for the 35RDC

Step 1: Press the **[LCD ADJ]** key.

Step 2: Use the [← or →] key to adjust the contrast.

Step 3: Press [*] to exit the Contrast Adjust Mode.

4 Advanced User Functions

IMPORTANT

The advanced user functions are intended for **qualified NDE technicians only**.

Modifying advanced user functions can affect the measurement capabilities of the instrument and should only be undertaken by a personnel with extensive knowledge of ultrasonic theory and the operation of ultrasonic instruments. The features presented in this chapter are not intended for normal operations.

Advanced user functions are designed to allow trained ultrasonic technicians to modify the default operating parameters of the 35RDC.

NOTE

Modifications to default settings are reset when the 35RDC is turned off and back on.

The functions available in the advanced user setup are:

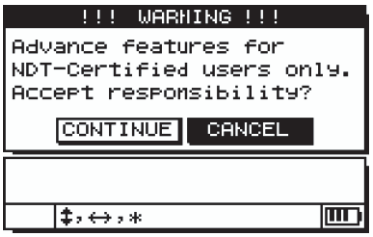
- Inactive Time
- View Waveform
- Adjust Alarm Offset Points
- Master Reset
- Self Diagnostics

4.1 Inactive Time

Inactive Time allows you to activate or deactivate the Auto Power Off feature. When Inactive Time is active (**On**), the 35RDC turns off after approximately 20 minutes of idle operation (no measurements or key pressed). When Inactive Time is disabled (**Off**), the 35RDC remains on until you turn it off or the battery voltage becomes low.

To change Inactive Time

Step 1: Press and hold the **[→]** arrow key and then press and hold the **[←]** arrow key for 5 seconds.
The **Advanced Setup Warning** screen appears.



Step 2: Release both keys.

Step 3: Using the **[←]** or **[→]** arrow key, highlight **CONTINUE** or **CANCEL**.
CONTINUE allow you to enter the advanced setups, while **CANCEL** returns you the measurement screen.

Step 4: Highlight **CONTINUE** and then press the [*] key.
The setup tabs are displayed.

Step 5: With the **System** tab highlighted, press the **[*]** key to highlight **Inactive Time**.

Step 6: Using the **[←]** and **[→]** arrow keys, select **On** or **Off**.

Step 7: Press the **[CAL]** key to return to the Measure Mode.

NOTE

Modifications to default settings are reset when the 35RDC is turned off and back on.

4.2 Waveform View Mode

A Waveform View mode allows you to view the live ultrasonic waveform with the Alarm Offset markers. This feature can enabled or disabled at any time, and offers additional information to a qualified ultrasonic technician familiar with the interpretation of ultrasonic signals.

To activate the Waveform View

Step 1: Press and hold the **[→]** arrow key and then press and hold the **[←]** arrow key for 5 seconds.
The **Advanced Setup Warning** screen appears.

Step 2: Release both keys.

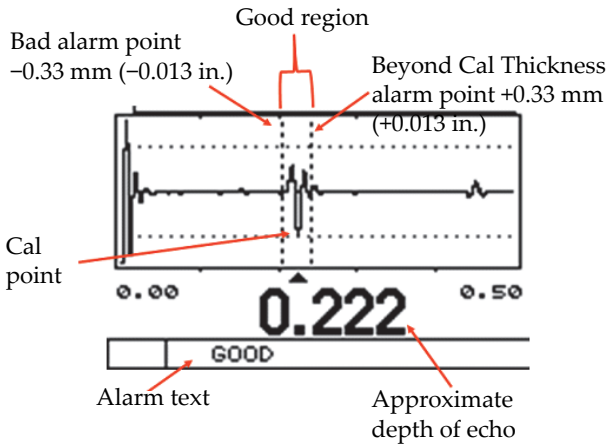
Step 3: Using the **[←]** or **[→]** arrow key, highlight **CONTINUE** or **CANCEL**.
CONTINUE allow you to enter the advanced setups, while **CANCEL** returns you the measurement screen.

Step 4: Highlight **CONTINUE** and then press the [*] key.
The setup tabs are displayed.

Step 5: With the **System** tab highlighted, press the **[*]** key twice to highlight **Waveform**.

Step 6: Using the **[←]** and **[→]** arrow keys, select **On** or **Off**.

Step 7: Press the **[CAL]** key to return to the Measure Mode.



NOTE

Modifications to default settings are reset when the 35RDC is turned off and back on.

4.3 Alarm Offset Points High/Low Alarms

The Alarm Offset Points allow you to establish high and low points from the calibrated ultrasonic thickness. By default, the Alarm Offsets Points are set to −0.33 mm and +0.33 mm (−0.013 in. and +0.013 in.), which more or less represents two layers (plies) of aerospace composite material (varies from one

manufacturer to another and according to the application).

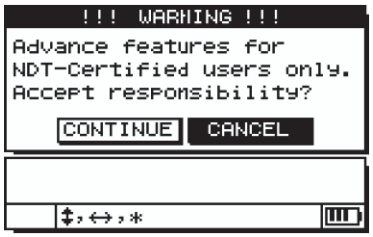
Alarm set points define the points where the gauge displays **GOOD**, **BAD**, and **BEYOND CAL THICKNESS**. When you calibrate the 35RDC, the thickness at the point of calibration becomes the reference point and the high and low alarms are calculated according to this thickness. These set points are automatically adjusted for each new calibration.

- The gauge displays **GOOD** if the return signal is within – Low Alarm and +High alarm of the calibration thickness.
- The gauge displays **BAD** if the return signal is thinner than Cal thickness–Low Alarm point. **BAD** is also displayed after a calibration is performed and the transducer is not coupled and receiving a valid signal.
- The gauge displays **BEYOND CAL THICKNESS** if the return signal is thicker than Cal thickness+High Alarm point.

To change the high and low alarm offset points

Step 1: Press and hold the **[→]** arrow key and then press and hold the **[←]** arrow key for 5 seconds.

The **Advanced Setup Warning** screen appears.



Step 2: Release both keys.

Step 3: Using the **[←]** or **[→]** arrow key, highlight **CONTINUE** or **CANCEL**.
CONTINUE allow you to enter the advanced setups, while **CANCEL** returns you the measurement screen.

Step 4: Highlight **CONTINUE** and then press the [*] key.
The setup tabs are displayed.

Step 5: Using the **[→]** arrow key, highlight the **Alarm** tab, and then press the **[*]** key to highlight **Low Alarm**.

Step 6: Using the **[←]** and **[→]** arrow keys, modify the **Low Alarm** offset point.

Step 7: Press the **[*]** key to highlight **High Alarm**.

Step 8: Using the **[←]** and **[→]** arrow keys, change the **High Alarm** offset point.

Step 9: Press the **[CAL]** key to return to the Measure Mode.

NOTE

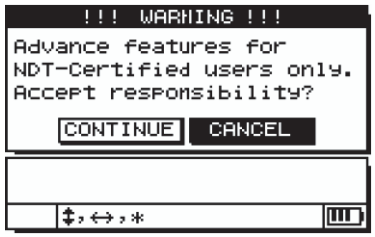
Modifications to default settings are reset when the 35RDC is turned off and back on.

4.4 Master Reset

The master reset allows you to return the instrument settings to their default values.

To perform a master reset

Step 1: Press and hold the **[→]** arrow key and then press and hold the **[←]** arrow key for 5 seconds.
The **Advanced Setup Warning** screen appears.



Step 2: Release both keys.

Step 3: Using the **[←]** or **[→]** arrow key, highlight **CONTINUE** or **CANCEL**.
CONTINUE allow you to enter the advanced setups, while **CANCEL** returns you the measurement screen.

Step 4: Highlight **CONTINUE** and then press the [*] key.
The setup tabs are displayed.

Step 5: Using the **[→]** arrow key, highlight the **Reset** tab, and then press the **[*]** key to highlight **Master reset**.

Step 6: Press the **[*]** key to initiate the master reset.

Step 7: Using the **[←]** and **[→]** arrow keys, highlight **RESET** or **CANCEL**.

Step 8: With **RESET** highlighted, press the **[*]** key to perform the master reset.
Pressing the **[*]** key when **CANCEL** is highlighted cancels the operation.

Step 9: Press the **[CAL]** key to return to the Measure Mode.

4.5 Self Diagnostic

The 35RDC ultrasonic gauge includes two self-diagnostic screens that allow you to identify hardware and software problems that may occur. The Diagnostic 1 screen allows you to see internal self-test results.

To perform the DIAG1 self test

Step 1: Press and hold the **[→]** arrow key and then press and hold the **[←]** arrow key for 5 seconds.
The **Advanced Setup Warning** screen appears.

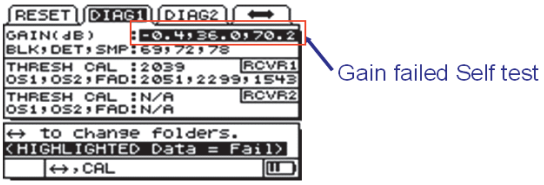
Step 2: Release both keys.

Step 3: Using the **[←]** or **[→]** arrow key, highlight **CONTINUE** or **CANCEL**.

CONTINUE allow you to enter the advanced setups, while **CANCEL** returns you the measurement screen.

Step 4: Highlight **CONTINUE** and then press the [*] key. The setup tabs are displayed.

Step 5: Using the **[←]** and **[→]** arrow keys, highlight the **DIAG1** tab.
The following results are displayed:



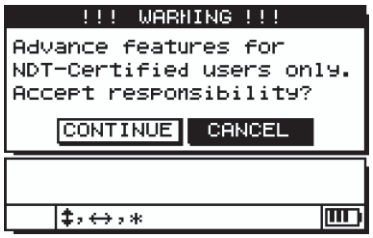
This screen displays the self test of the gauge's gain and receive threshold circuits. Parameters that failed the self test appear highlighted.

Step 6: Press the **[CAL]** key to return to the Measure Mode.

To perform the DIAG2 self test

Step 1: Press and hold the **[→]** arrow key and then press and hold the **[←]** arrow key for 5 seconds.

The **Advanced Setup Warning** screen appears.

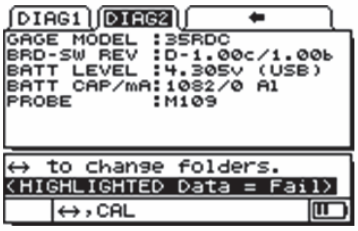


Step 2: Release both keys.

Step 3: Using the **[◄—]** or **[—►]** arrow key, highlight **CONTINUE** or **CANCEL**.
CONTINUE allow you to enter the advanced setups, while **CANCEL** returns you the measurement screen.

Step 4: Highlight **CONTINUE** and then press the [*] key.
The setup tabs are displayed.

Step 5: Using the **[◄—]** and **[—►]** arrow keys, highlight the **DIAG2** tab.
The following results are displayed:



This screen displays the gauge's model, the hardware and software versions, the battery status, and the probe type

currently being used. Parameters that failed the self test appear highlighted.

Step 6: Press the **[CAL]** key to return to the Measure Mode.

5 Specifications

Table 2: 35RDC specifications

Thickness measurement range	0.64 mm to 22.86 mm (0.025 in. to 0.900 in.), depending on material and application
Measurement range	20 measurements per second
Measurement mode	Mode 1—Time between excitation pulse and first echo following blank period using contact transducers
Display	LCD, 160 pixels × 100 pixels
Battery life	Approximately 150 hours (without backlight)
Operating temperature range (electronics)	−10 °C to 50 °C (14 °F to 122 °F)
Dimensions (W x H x D)	84.1 mm × 152.4 mm × 38.1 mm (3.31 in. × 6.00 in. × 1.50 in.)
Weight	241 g (8.5 oz.)
Transducer operation	Single-element contact transducers
IP65 rated	Rated IP65—gasket-sealed case for water and dust ingress protection

6 Maintenance and Troubleshooting

6.1 Routine Care and Maintenance

The 35RDC case is sealed to prevent liquids and dust from entering the gauge. The case **is not**, however, completely waterproof. Thus, the gauge should never be immersed in a fluid. The case, keypad, and display window can be cleaned with a damp cloth and mild detergent solution, if necessary. Do not use strong solvents or abrasives.

Keep the 35RDC Ramp Damage Checker in its case. Make sure that the gauge is off before storing it.

If the batteries are low, the battery charge indicator at the lower-right corner of the display only shows one bar. Replace the batteries with three AA alkaline batteries or use commercially available rechargeable AA NiMH batteries. Rechargeable batteries must be recharged outside the unit with a charger supplied by the battery manufacturer. The 35RDC cannot recharge batteries internally.

If the instrument cannot be turned on, try replacing the batteries.

If the unit fails to calibrate, investigate the following:

- You may not have proper couplant between the end of the probe and the material under test. Reapply couplant on the

material.

- You may be calibrating on an area beyond the maximum thickness range of the instrument.

6.2 Transducers

Ultrasonic transducers and probes used with the 35RDC are rugged devices needing little care, but keep in mind that they are not indestructible. Paying attention to the following should lengthen the life of your transducers and probes:

- Cables can be damaged by cutting, pinching, or pulling. Take care to prevent mechanical abuse to the cables. Never leave a transducer or probe where a heavy object can be placed on its cable.
- Never remove a transducer or probe from the gauge by pulling the cable. Only pull on the molded connector housing.
- Never knot transducer or probe cables. Do not twist or pull cables at the point where they connect to transducers or probes.
- Transducer and probe performance decrease through excessive wear at their tips. To minimize wear, do not scrape or drag transducers or probes across rough surfaces. When transducer or probe tips become too rough, concave, or otherwise not flat, operation may become erratic or even impossible.

6.3 Error Messages

During the normal operation of the gauge, special error messages can appear on the LCD. Usually, they indicate a problem with the operating procedure, but some messages may indicate physical problems with the gauge. Consult Evident for more information.

6.4 Repair Service

The company will repair any 35RDC gauge at its Waltham, Massachusetts, USA installations. In addition, some local Evident dealers can perform repairs.