

## 27MG Ultrasonic Thickness Gage Getting Started Guide

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### Intended Use

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The 27MG is designed to measure thicknesses of industrial and commercial materials. Do not use the 27MG for any purpose other than its intended use.

### Instruction Manual

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Before use, thoroughly review the 27MG *User's Manual*, and use the product as instructed. The User's Manual contains essential information on how to use this Evident product safely and effectively. The 27MG User's Manual is available on the documentation CD that is shipped with the 27MG, or can be downloaded at [EvidentScientific.com](http://EvidentScientific.com). Keep the documentation CD in a safe, accessible location.

### Safety Signal Words

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#### **DANGER**

Indicates an imminently hazardous situation and calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in death or serious personal injury

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#### **WARNING**

Indicates a potentially hazardous situation and calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in death or serious personal injury.

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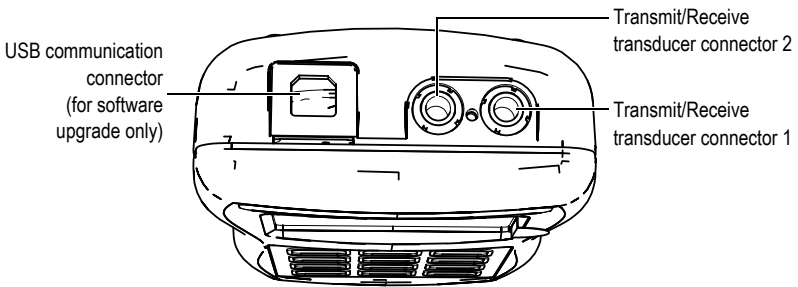
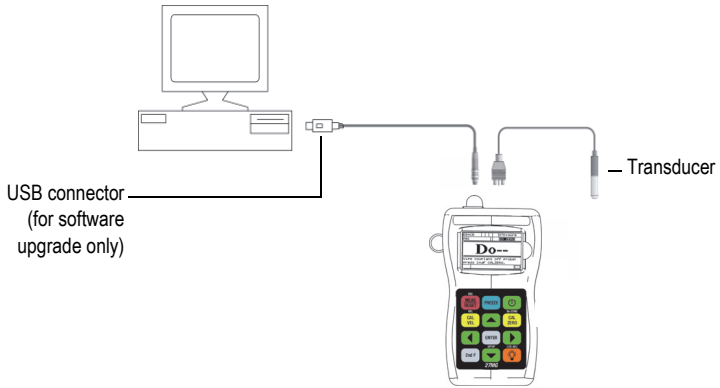
#### **CAUTION**

Indicates a potentially hazardous situation and calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could 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.

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# Connections

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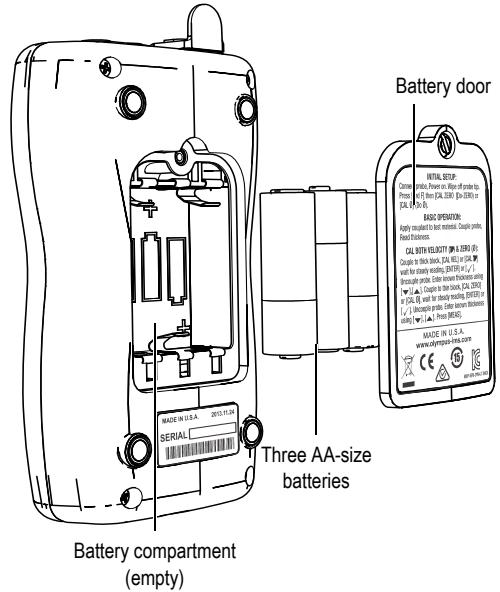
## To Replace the Batteries




### CAUTION

Do not replace the batteries while the instrument is turned on. Dispose of used batteries promptly. Keep batteries out of reach of children. The batteries used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 50 °C, or incinerate the batteries.

1. Ensure that the 27MG is turned off.
2. Disconnect any cables that are connected to the 27MG.
3. Remove the optional protective rubber boot, if installed.
4. Turn the battery door screw counterclockwise to unlock the door.
5. Remove the battery door.
6. Remove the batteries.
7. Insert three new batteries into the battery compartment, making sure to observe the correct polarity for each battery.
8. Reinstall the battery door on the back of the instrument, and then turn the battery door screw clockwise to lock the door.
9. Reinstall the optional protective rubber boot, if required.




10. Press  to turn on the 27MG instrument.
11. To answer the question displayed at the bottom of the screen:
  - ◆ Select **Alkaline** when using three AA-size alkaline batteries.OR
  - Select **NiMH** when using three AA-size nickel-metal hybrid (NiMH) batteries.
12. Press [ENTER].

### NOTE

You can also operate the 27MG using three AA-size NiMH rechargeable batteries. The 27MG does not recharge NiMH batteries. The batteries must be recharged using a commercially available external battery charger (not included).

## To Start Using a D79X Dual Element Transducer

1. Plug the transducer into the transducer connectors located on the top of the instrument.
2. Press  to turn on the instrument.
3. Wipe any couplant off the transducer tip, and then press [2nd F], [Cal Zero] (Do Zero) or [2ndF], [Cal 0] (Do 0).

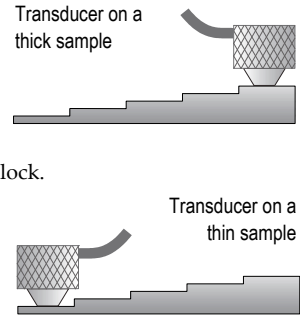
The 27MG is now ready to take thickness readings for the test block supplied with the instrument, using the default velocity.

## To Calibrate the Instrument

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The 27MG must be calibrated to ensure the thickness measurement accuracy for the transducer and the tested material being used. This is achieved by performing the velocity and zero calibrations on two known thicknesses of a test block (such as a five-step test block, as shown below) made out of the same material as the inspected parts.

1. Place couplant on the surface of the thick sample of the test block.
2. Couple the transducer on the thick sample of the test block.
3. Press **[Cal Vel]** or **[Cal v]**.
4. Once the thickness reading is stable, press **[ENTER]** or **[✓]**.
5. Use the arrow keys to enter the known thickness.
6. Press **[Cal Zero]** or **[Cal 0]**.
7. Place couplant on the surface of the thin sample of the test block.
8. Couple the transducer on the thin sample of the test block.
9. Once the thickness reading is stable, press **[ENTER]** or **[✓]**.
10. Use the arrow keys to enter the known thickness.
11. Press **[MEAS]**.



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### NOTE

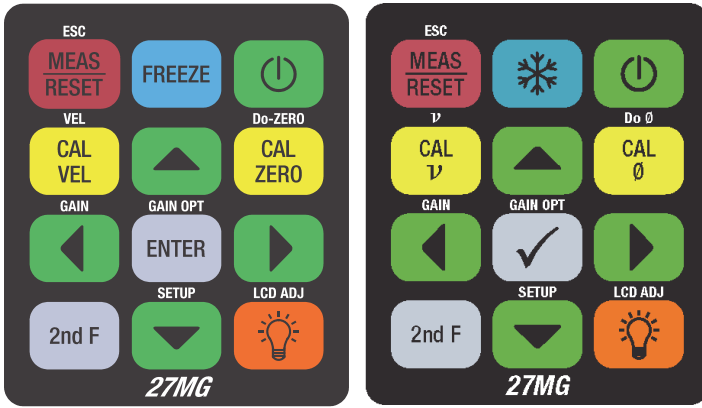
For more information about calibration, and about selecting the correct transducer for a specific application, refer to the *27MG Ultrasonic Thickness Gage – User's Manual*, or contact Evident.

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# Keypad Functions

The 27MG comes with either an English or international keypad. The functions on both keypads are identical. Many keys on the international keypad contain pictograms instead of text labels. In the 27MG user documentation, keypad keys are referred to using the English label, displayed in bold and within brackets (ex.: **[Gain]**).

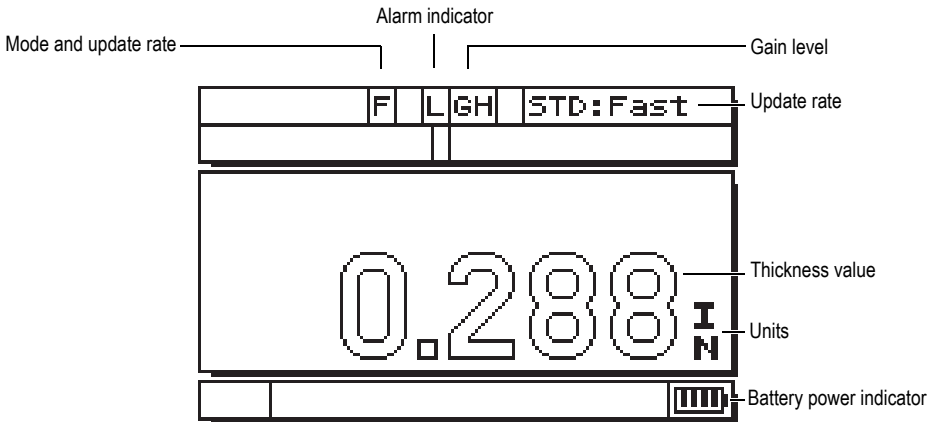
Each key is labelled according to its primary function. The area immediately above certain keys indicates a secondary key function. The [**▲**], [**▼**], [**◀**], [**▶**], and **[ENTER]** or **[✓]** keys are used to select menu items and screen parameters, and to change parameter values. Use the **[MEAS]** key at any time to return to the measurement screen.



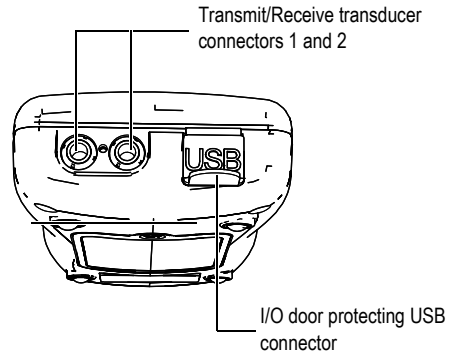
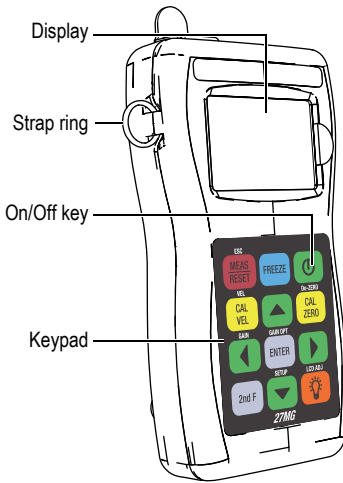
English keypad

International keypad

# Measurement Screen



# Instrument Hardware Components



## Battery Precautions



### CAUTION

- Before disposing of a battery, check your local laws, rules, and regulations, and follow them accordingly.
- Do not open, crush, or perforate batteries; doing so could cause injury.
- Do not incinerate batteries. Keep batteries away from fire and other sources of extreme heat. Exposing batteries to extreme heat (over 50 °C [122 °F]) could result in an explosion or personal injury.
- Do not drop, hit, or otherwise abuse a battery, as doing so could expose the cell contents, which are corrosive and explosive.
- Do not short-circuit the battery terminals. A short circuit could cause injury and severe damage to a battery, making it unusable.
- Do not expose a battery to moisture or rain; doing so could cause an electric shock.
- Do not leave batteries in the 27MG unit during instrument storage.

## Equipment Disposal

Before disposing of the 27MG, check your local laws, rules, and regulations, and follow them accordingly.

# Electrical Warnings

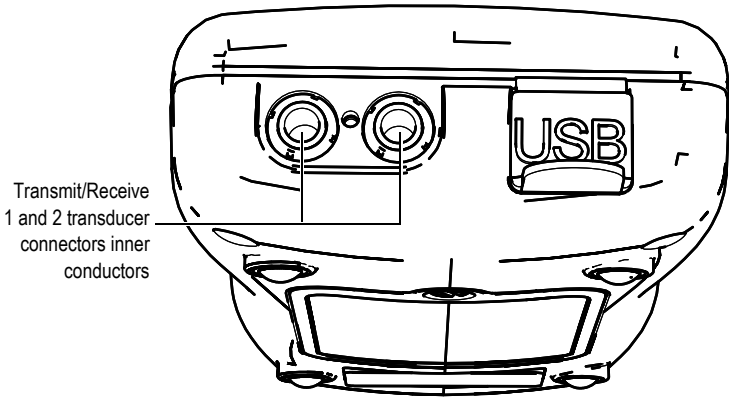
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## DANGER

To avoid the risk of electric shock, do not touch the inner conductor of the Transmit/Receive (T/R) T/R1 and T/R2 transducer connectors. Up to 150 V can be present on the inner conductors.

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## WARNING



- Do not touch the connectors directly by hand. Otherwise, a malfunction or electric shock may result.
  - Do not allow metallic foreign objects to enter the device through the connectors or any other openings. Otherwise, a malfunction or electric shock may result.
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