EVIDENT™

45MG

Getting Started Guide

Intended Use

The 45MG is designed to measure thicknesses of industrial and commercial materials. Do not use the 45MG for any purpose other than its intended use.

Instruction Manual

Before use, thoroughly review the *45MG User's Manual* (P/N: DMTA-10022-01EN), and use the product as instructed. The User's Manual contains essential information on how to use this Evident product safely and effectively. The 45MG User's Manual is available on the documentation CD (P/N: 45MG-MAN-CD [U8147024]) that is shipped with the 45MG, or can be downloaded at EvidentScientific.com. Keep the documentation CD in a safe, accessible location.

Safety Signal Words

DANGER

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

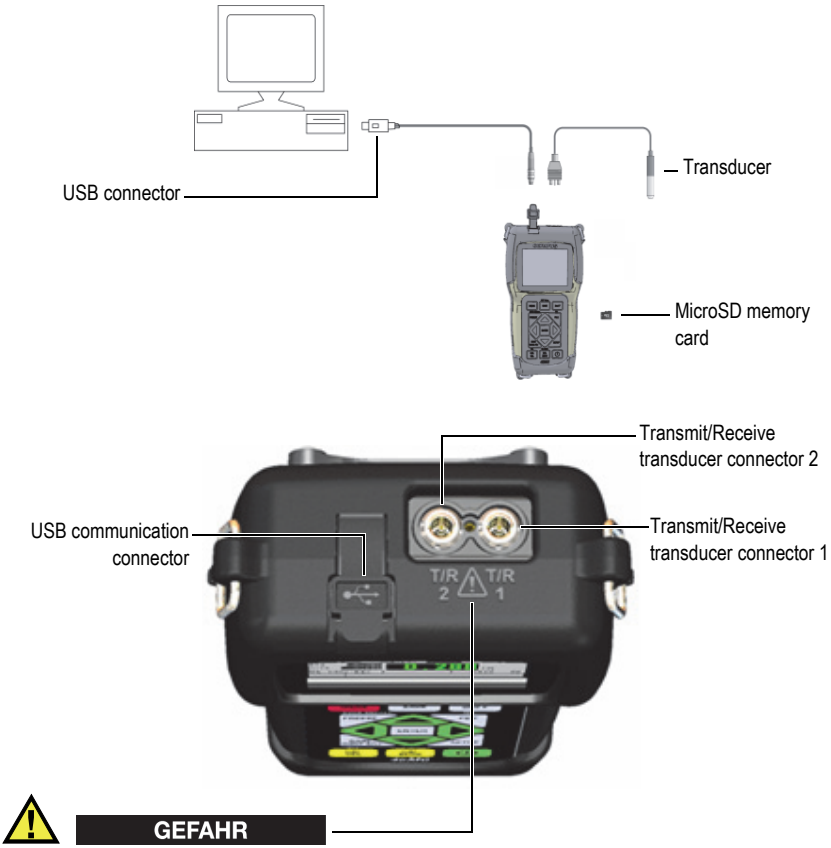
WARNING

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

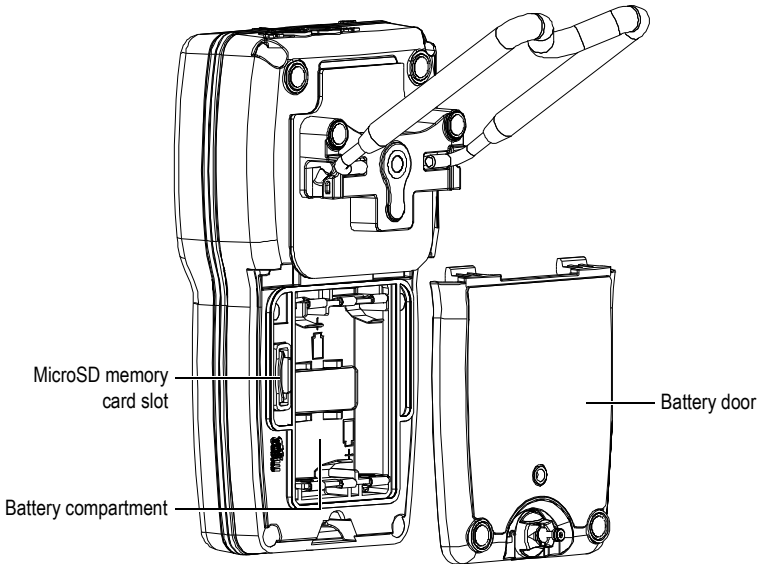
CAUTION

Indicates a potentially hazardous situation calling 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.

Connections



To avoid the risk of electric shock, do not touch the inner conductors of the T/R 1 and T/R 2 connectors. Up to 200 V may be present on the inner conductor.

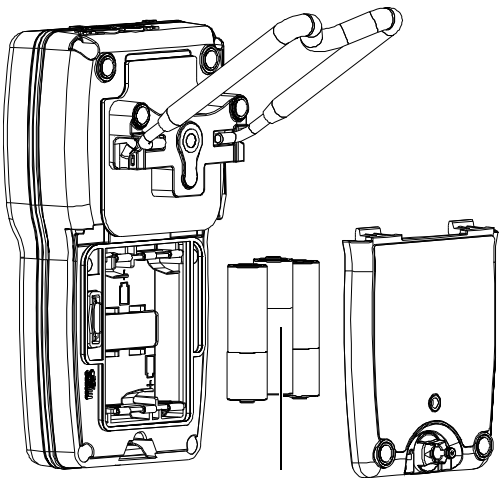


VORSICHT

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.

To replace the batteries

1. Ensure that the power to the 45MG is turned off.
2. Disconnect any other cables connected to the 45MG.
3. Remove the optional protective rubber boot, if installed.
4. Turn the battery door lock half a turn counterclockwise to the unlock position.
5. Remove the battery compartment cover.
6. Remove the batteries.
7. Insert three new batteries into the battery compartment, making sure to observe the correct polarity for each battery.
8. Ensure that the gasket inside the battery compartment cover is clean and in good condition.



9. Reinstall the battery compartment cover on the back of the instrument, push down on the bottom of the battery door, and then turn the battery door lock half a turn clockwise to the lock position.

10. Reinstall the optional protective rubber boot, if required.
11. Press ⏻ to turn on the 45MG instrument.
12. To answer the question appearing 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.
    OR
    Select **Lithium** when using three AA-size lithium batteries.
13. Press **[ENTER]**.

NOTE

You can also operate the 45MG using three AA-size NiMH rechargeable batteries. The 45MG 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 the couplant off the transducer tip, and then press **[2nd F]**, **[CAL ZERO] (Do ZERO)**.
   The 45MG is now ready to take thickness readings using the default velocity for the test block supplied with the instrument.

To Start Using a Single Element Transducer (Optional)

The 45MG comes with factory default settings for the transducers purchased. The default settings use an approximate sound velocity for the stainless steel test block provided with the instrument.

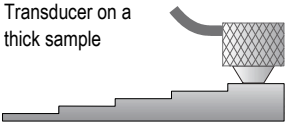
1. Connect the transducer to the transducer cable, and then plug the cable into the T/R 1 connector on the top of the instrument.
2. Press ⏻ to turn on the instrument.
3. Press **[2nd F]**, **[FREEZE] (XDCR RECALL)**.
4. In the menu, select **DEFAULT SINGLE ELEMENT**, or any custom single element.
5. In the **SELECT SETUP** list of the **DEFAULT SINGLE ELEMENT** screen, highlight the setup that corresponds to the transducer being used, and then press **[ENTER]**.
6. In the **ACTIVE** screen, if needed, edit the parameters to match the characteristics of the transducer being used, and then press **[MEAS]**.
   The 45MG is now ready to take thickness readings using the default velocity for the test block supplied with the instrument.

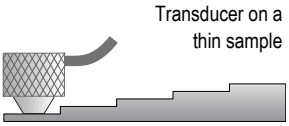
To Calibrate the Instrument

The 45MG 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]**.
4. Once the thickness reading is stable, press **[ENTER]**.
5. Use the arrow keys to enter the known thickness.
6. Press **[CAL ZERO]**.
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].**
10. Use the arrow keys to enter the known thickness.
11. Press **[MEAS]**.



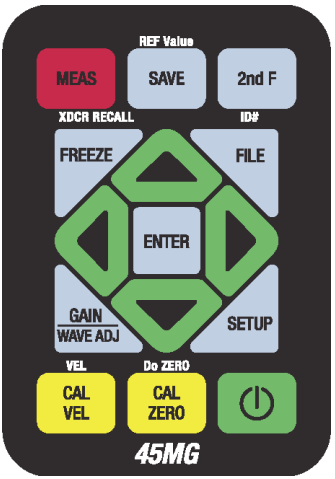


Note: For more information about calibration, and about selecting the correct transducer for a specific application, refer to the *45MG Ultrasonic Thickness Gage — User's Manual* (P/N: DMTA-10022-01EN), or contact Evident.

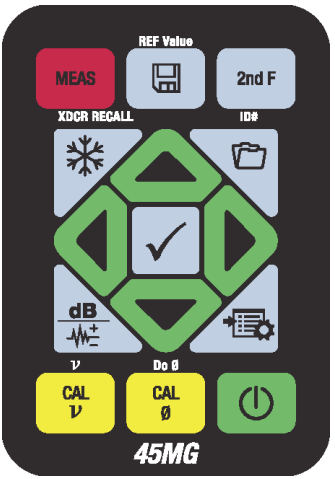
Keypad Functions

The 45MG 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 45MG user documentation, keypad keys are referred to using the English label, displayed in bold and within brackets (ex.: **[FILE]**).

Each key is labelled according to its primary function. The area immediately above certain keys indicates a secondary key function. The **[▲]**, **[▼]**, **[◀]**, **[▶]**, and **[ENTER]** 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.

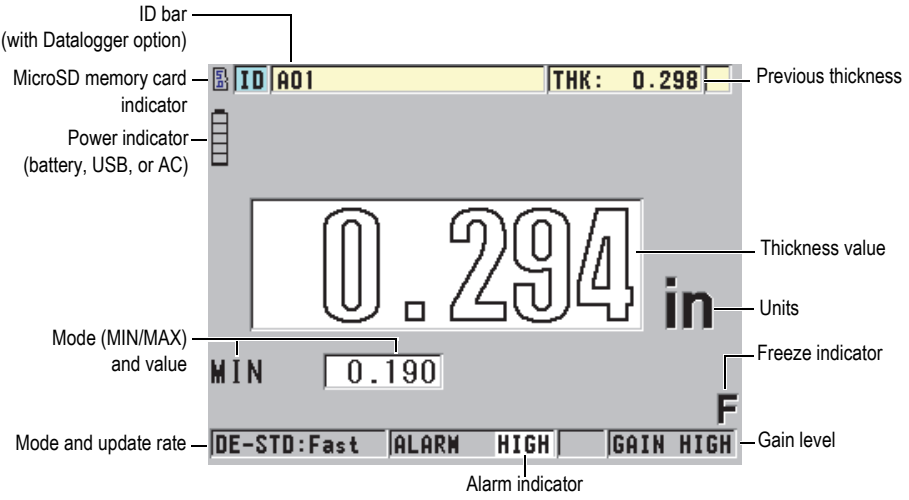


English keypad

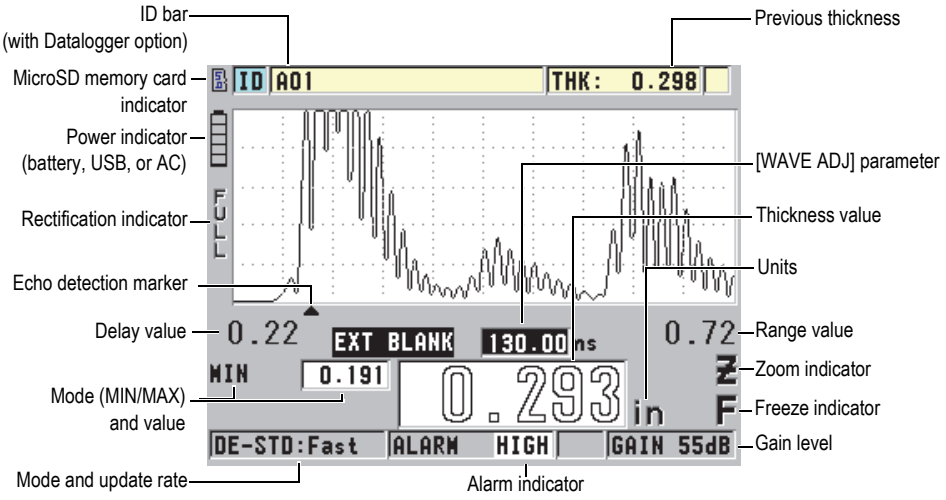


International keypad

Measurement Screen (No Waveform Option)



Measurement Screen (Waveform Option)



Instrument Hardware Components

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

DMTA-10024-01EN [U8778520] Rev. B, September 2022

Printed on Rolland Hitech50, which contains 50 % post-consumer fiber.