

## EPOCH 650 Ultrasonic Flaw Detector Getting Started Guide

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### Intended Use

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The EPOCH 650 ultrasonic flaw detector is designed to perform nondestructive inspections of industrial and commercial materials. Do not use the EPOCH 650 for any purpose other than its intended use.

### Instruction Manual

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Before use, thoroughly review the *EPOCH 650 Ultrasonic Flaw Detector User's Manual*. Use the product as instructed. The *User's Manual* contains essential information on how to use this Evident product safely and effectively. Keep the *User's Manual* 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, will 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, 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.

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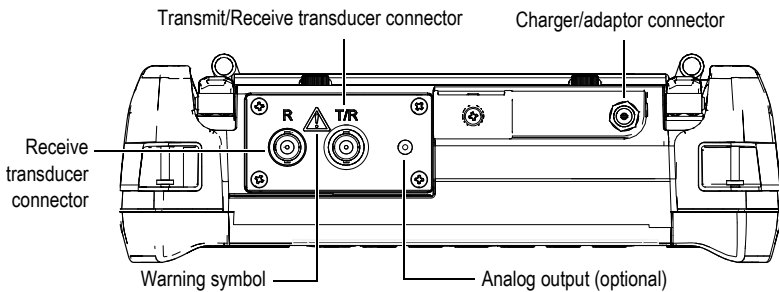
# Contents of the Case

The EPOCH 650 comes standard with several key accessories:

1. Instrument transport case (P/N: 600-TC [U8780294])
2. AC charger/adaptor (P/N: EP-MCA-X), where X denotes the power cord model.
3. Power cord
4. Removable 2 GB microSD memory card and adaptors (P/N: MICROSD-ADP-2GB [U8779307])
5. *EPOCH 650 Ultrasonic Flaw Detector Getting Started Guide* (P/N: DMTA-10056-01EN [Q7780001])
6. *EPOCH 650 Ultrasonic Flaw Detector User's Manual* (P/N: EP650-MANUAL-CD [Q7780010]) on CD-ROM
7. USB cable (P/N: EPLTC-C-USB-A-6 [U8840031]). (USB cable not shown.)

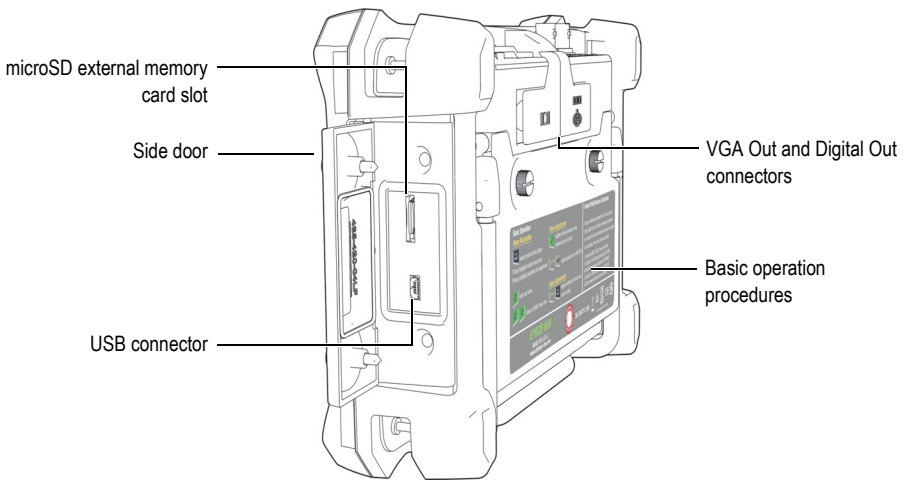


## Connections



### CAUTION

To avoid the risk of electric shock, do not touch the inner conductor of the BNC (or LEMO) connectors. Up to 400 V can be present on the inner conductors. The warning symbol shown above warns of this electric shock risk.



## AC Charger/Adaptor

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An EPOCH 650 AC charger/adaptor is provided with every instrument. This charger/adaptor is used to power the EPOCH 650 with or without a battery installed and charge the rechargeable lithium-ion battery while installed in the instrument.



### CAUTION

If an unauthorized power supply cord is used to power the instrument or charge the battery, Evident cannot guarantee the electrical safety of the equipment.

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## Charging the Lithium-Ion Battery

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The EPOCH 650 charges the internal battery while it is connected to the AC charger/adaptor.

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### CAUTION

The EPOCH 650 charger/adaptor (P/N: EP-MCA-X) is designed to power the EPOCH 650 and charge the batteries only (P/N: 600-BAT-L-3 [U8051431]). Do not attempt to power or charge other electronic equipment with the EP-MCA charger/adaptor as doing so could create an explosion resulting in death or serious personal injury.

Do not insert any other type of battery into the battery compartment or use any other type of charger/adaptor. Doing so might cause an explosion or injury.

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### IMPORTANT

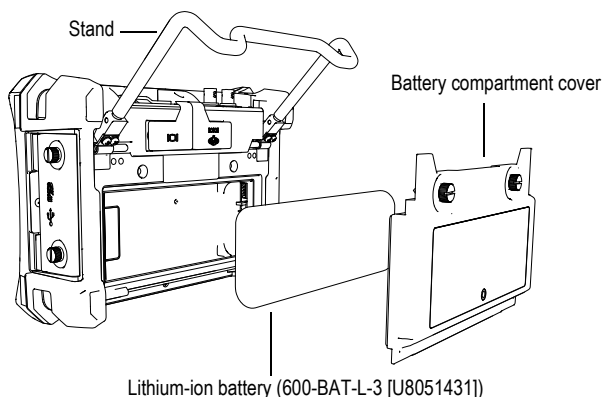
The battery is not fully charged when the EPOCH 650 is shipped. You must charge the battery for two to three hours before using battery power to operate the instrument.

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## To Replace the Battery

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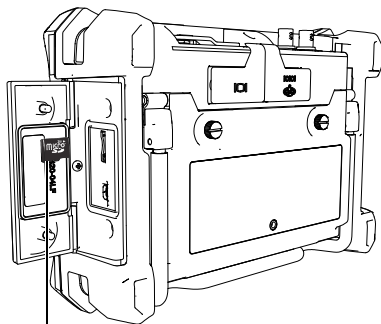
1. Turn off the EPOCH 650 and disconnect DC power.
2. Fully unfold the stand at the back of the EPOCH 650.
3. Loosen the two thumb screws securing the battery compartment cover and remove the cover.
4. Remove the used battery.
5. Install a new battery, aligning the connectors on the battery with the battery compartment connectors.
6. Reinstall the battery cover (fit the tab on the cover into the slot on the bottom of the instrument).
7. Tighten the two thumb screws to complete the installation.



## To Install the microSD Card

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1. Remove the microSD card from its packaging.
2. Loosen the two thumb screws and open the EPOCH 650 side door.
3. Hold the microSD card so that the metal pins face toward the front of the instrument.
4. Gently slide the card into the microSD slot until it clicks.



microSD card (P/N: MICROSD-ADP-2GB [U8779307])

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### NOTE

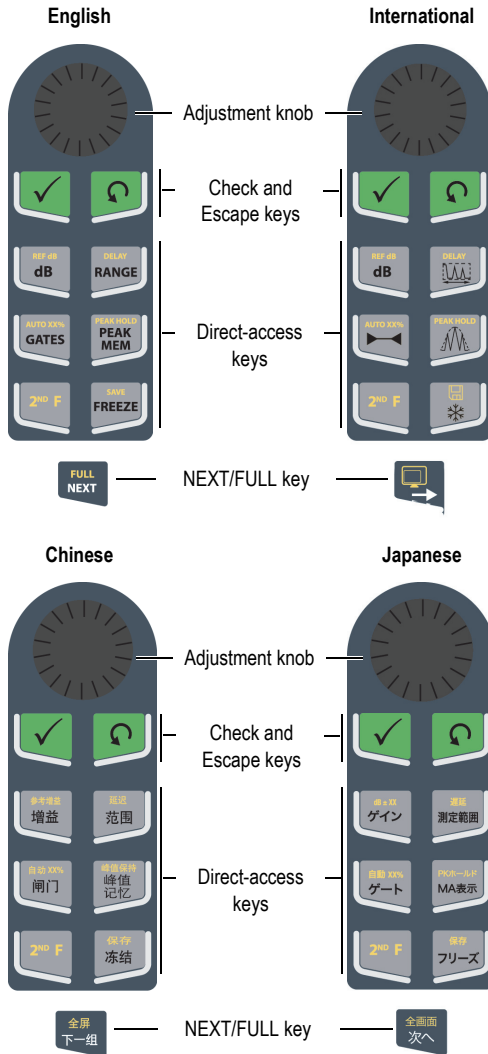
To remove the microSD card, gently push the card into the EPOCH 650 and release. A spring-loaded mechanism will partially eject the card, and then you can grasp and remove it from the EPOCH 650.

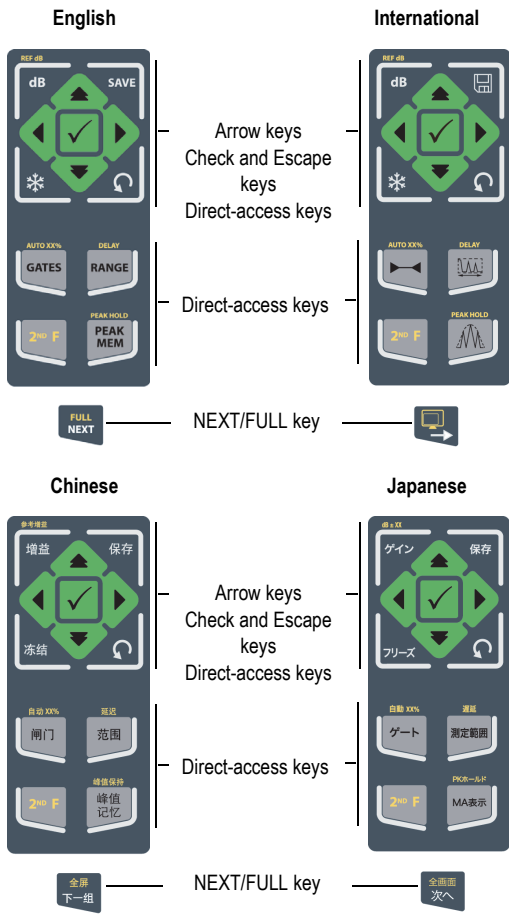
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# Keypads and Direct-Access Keys

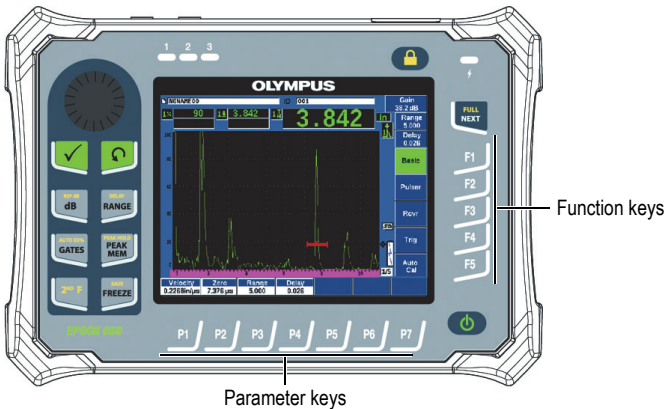
The EPOCH 650 is available with either an adjustment knob or a navigation pad. Both configurations come with a standard English or international keypad. Chinese and Japanese versions are also available. All keypads have identical functions. On the international keypad, pictograms replace text labels on several keys.

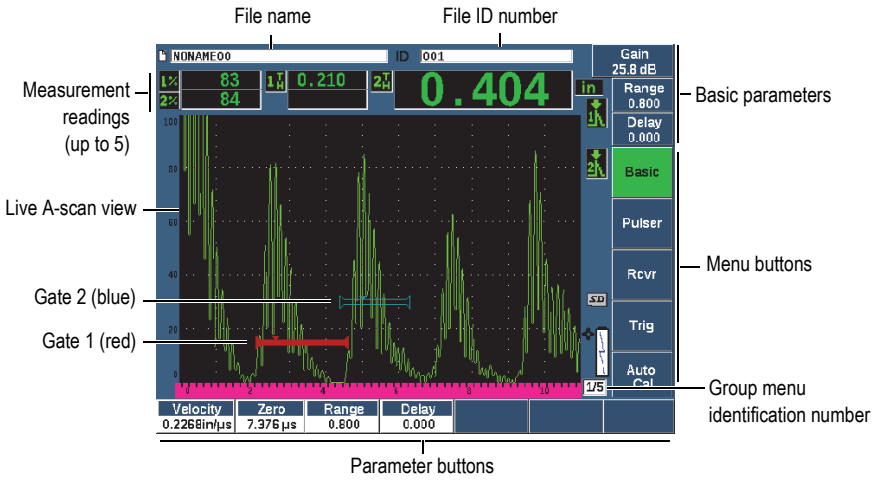
The NEXT key is used to navigate through menus and setup pages. The arrow keys (navigation pad version) or the adjustment knob (adjustment knob version) are used to select and change parameter values. The label on each key indicates its primary function. Labels located at the top of, or above direct-access keys indicate a secondary key function. The 2<sup>ND</sup> F key must be pressed before the secondary function can be activated.





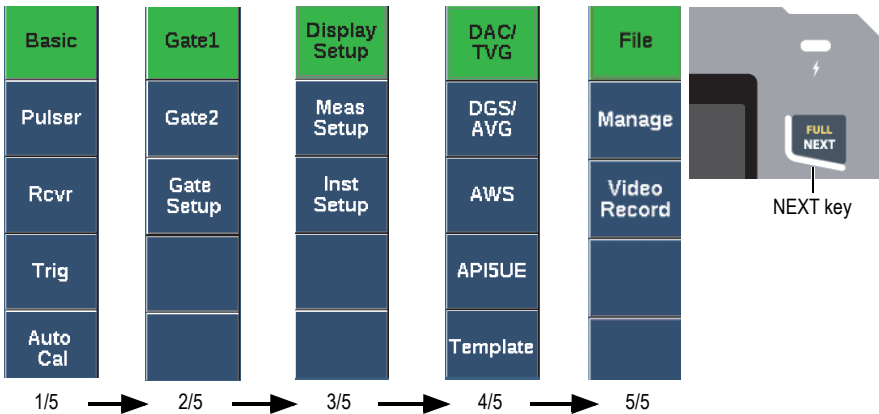
## Software User Interface






































## Menu Groups

There are five menu groups on the EPOCH 650. Each menu group is identified by a number (1/5, 2/5, 3/5, 4/5, and 5/5). To scroll through the menu groups, use the NEXT key.



# Measurement Symbols and Flags

The EPOCH 650 indicates when particular functions are active by displaying flags within a thin vertical bar to the right of the live-scan area and at the top of the screen.

Flag	Description	Flag	Description
	Distance units are in inches.		<b>Calibration</b> is active.
	Distance units are in millimeters.		Curved surface correction (CSC) is active.
	Time units are in microseconds.		Gate tracking ( <b>Echo-to-Echo</b> ) is active
	Indicates that the 2 <sup>nd</sup> F key has been pressed.		<b>Zoom</b> is active.
	<b>Gate 1</b> is in peak measurement mode.		<b>FREEZE</b> is active.
	<b>Gate 2</b> is in peak measurement mode.		<b>AUTOFREEZE</b> is active.
	<b>Gate 1</b> is in edge measurement mode.		<b>PEAK MEM</b> is active.
	<b>Gate 2</b> is in edge measurement mode.		2 <sup>nd</sup> F, ( <b>PEAK HOLD</b> ) is active.
	<b>Gate 1</b> is in first-peak measurement mode.		Indicates that waveform averaging is active.
	<b>Gate 2</b> is in first-peak measurement mode.		Access to all instrument functions except <b>On/Off</b> is locked.
	<b>Gate 1</b> is in J-Flank measurement mode.		Indicates that a microSD card is installed.
	<b>Gate 2</b> is in J-Flank measurement mode.		Indicates that the microSD card is not installed
	DAC is active.		Current settings are restricting waveform update rate below 60 Hz
	DGS is active.		Indicates that the charger is connected and charging the battery.
	AWS is active.		Indicates that the instrument is running on battery power.
	API 5UE is active.		Indicates video record mode is actively acquiring a video.
	<b>Template Storage</b> is active.		



# Battery Precautions

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## CAUTION

- Before disposing of a battery, check your local laws, rules, and regulations, and follow them accordingly.
- Transportation of lithium-ion batteries is regulated by the United Nations under the United Nations Recommendations on the Transport of Dangerous Goods. It is expected that governments, intergovernmental organizations, and other international organizations shall conform to the principles laid down in these regulations, thus contributing to worldwide harmonization in this field. These international organizations include the International Civil Aviation organization (ICAO), the International Air Transport Association (IATA), the International Maritime Organization (IMO), the US Department of Transportation (USDOT), Transport Canada (TC), and others. Please contact the transporter and confirm current regulations before transportation of lithium-ion batteries.
- 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 80 °C) 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.
- Only use the EPOCH 650 with an external charger approved by Evident to charge the batteries.
- Only use batteries supplied by Evident.
- Do not store batteries that have less than 40 % remaining charge. Recharge batteries to between 40 % and 80 % capacity before storing them.
- During storage, keep the battery charge between 40 % and 80 %.
- Do not leave batteries in the EPOCH 650 unit during instrument storage.

# Electrical Warnings

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## WARNING

The instrument must only be connected to a power source corresponding to the type indicated on the rating label.



## CAUTION

If an unauthorized power supply cord is used to power the instrument, Evident cannot guarantee the electrical safety of the equipment.

# Equipment Disposal

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Before disposing of the EPOCH 650, check your local laws, rules, and regulations, and follow them accordingly.





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consumer fiber.