Mikrosize®

iThick-E20

Electromagnetic Ultrasonic Thickness Gauge

Video

Contact us

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Features and Applications

Product Features

- Multifunctional Integration: Featuring A-scan mode, B-scan mode, numerical display mode, and other functions, it can meet various measurement requirements.
- Non-contact Measurement: No acoustic coupling agent is required, eliminating the impact of coupling agents on measurements.
- Compact Size: Convenient for portability and use in various working environments.
- High-precision Measurement: With a measurement accuracy of ±0.01mm, it provides accurate measurement results.
- Capable of Measuring Multiple Materials: It can measure the thickness of various metals or magnetically permeable materials, such as aluminum, copper, iron, carbon steel, cast steel, alloy steel, stainless steel, titanium alloy, etc.
- Measurement Modes: Single echo (I-E) and double echo (E-E) modes; Search Modes: leading edge-leading edge, peak-peak, peak-leading edge; Rectification Modes: RF, inverted RF, full wave, envelope, negative half-wave, positive half-wave, etc.
- Storage Capacity: Can store up to 100,000 thickness values in a grid file format for easy retrieval and selection of storage locations. Data can be imported into a computer via USB communication and can be subjected to statistics, analysis, archiving, report printing, and other operations in the host computer software.
- Auxiliary and Correction Functions: Equipped with multiple auxiliary and correction functions such as automatic freeze, automatic gain, automatic sleep, A-Scan, thickness B-scan, digital filtering, automatic range, waveform filling, waveform translation, suppression adjustment, backlight adjustment, buzzer, and other auxiliary functions.

Product Applications

- For measuring the thickness of metal plates, tubes, bars, and other materials;
- For precise thickness measurement of components in machinery manufacturing, automobile manufacturing, aerospace manufacturing, and other industries;
- For inspecting the wall thickness of special equipment such as boilers, pressure vessels, and pipelines;
- For monitoring the thickness of metal materials during metal smelting, rolling, and other processes.

Instrument Appearance

1. Virtual Function Key: Execute the functions indicated at the corresponding positions on the screen.

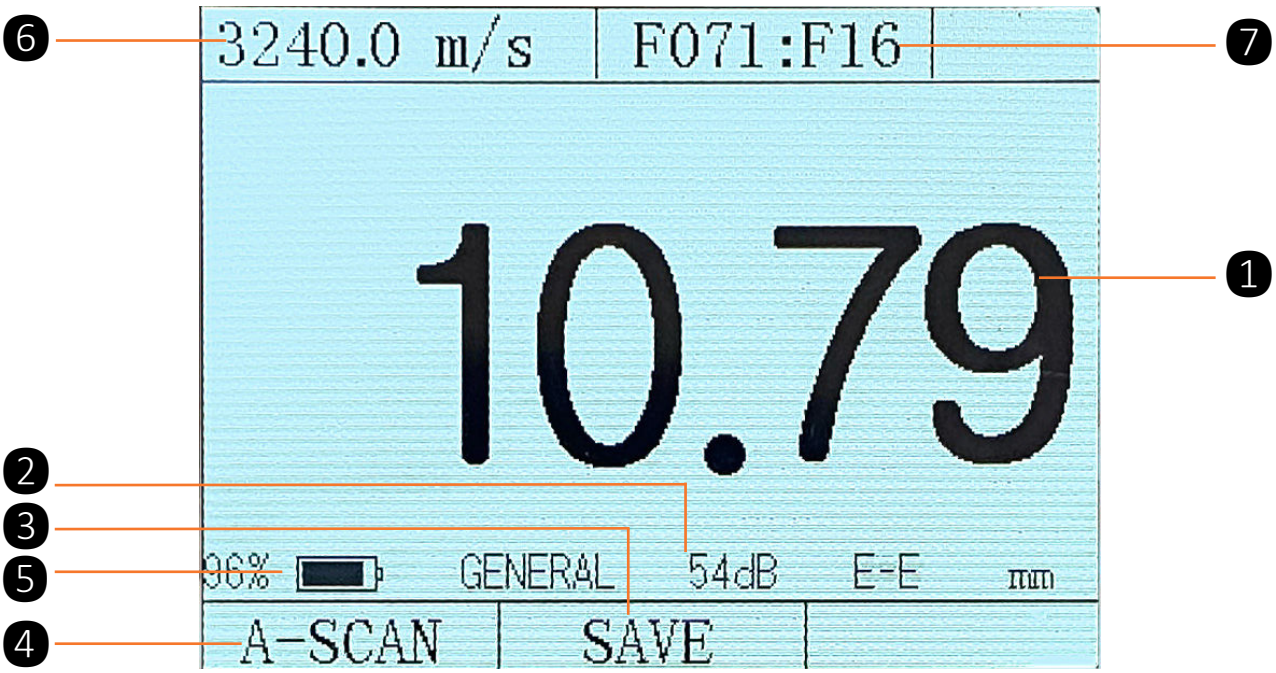
2. Short Press: Switch between the menu interface and the thickness measurement interface

Long Press: Execute the thickness value storage function.

3. Short Press: initiate calibration Long Press: Power on or power off the device.

4. Up Arrow Key 5. Down Arrow Key 6. Left Arrow Key 7. Right Arrow Key

Operation Interface



1. Thickness Reading

2. From left to right: Probe Type, Gain, Measurement Mode, Measurement Unit

3. Store Current Thickness Value

4. A-Scan Snapshot Interface

5. Battery Level Display

6. Material Sound Velocity

7. Thickness Value Storage Number

Operation Interface

Difference Mode

- This interface displays the difference (the difference between the measured thickness value and the nominal thickness), the reduction rate (the percentage of the difference to the nominal thickness), and simultaneously shows the numerical values of both the current measured thickness and the nominal thickness.

- Nominal Value
- Difference Value
- Drawdown Rate

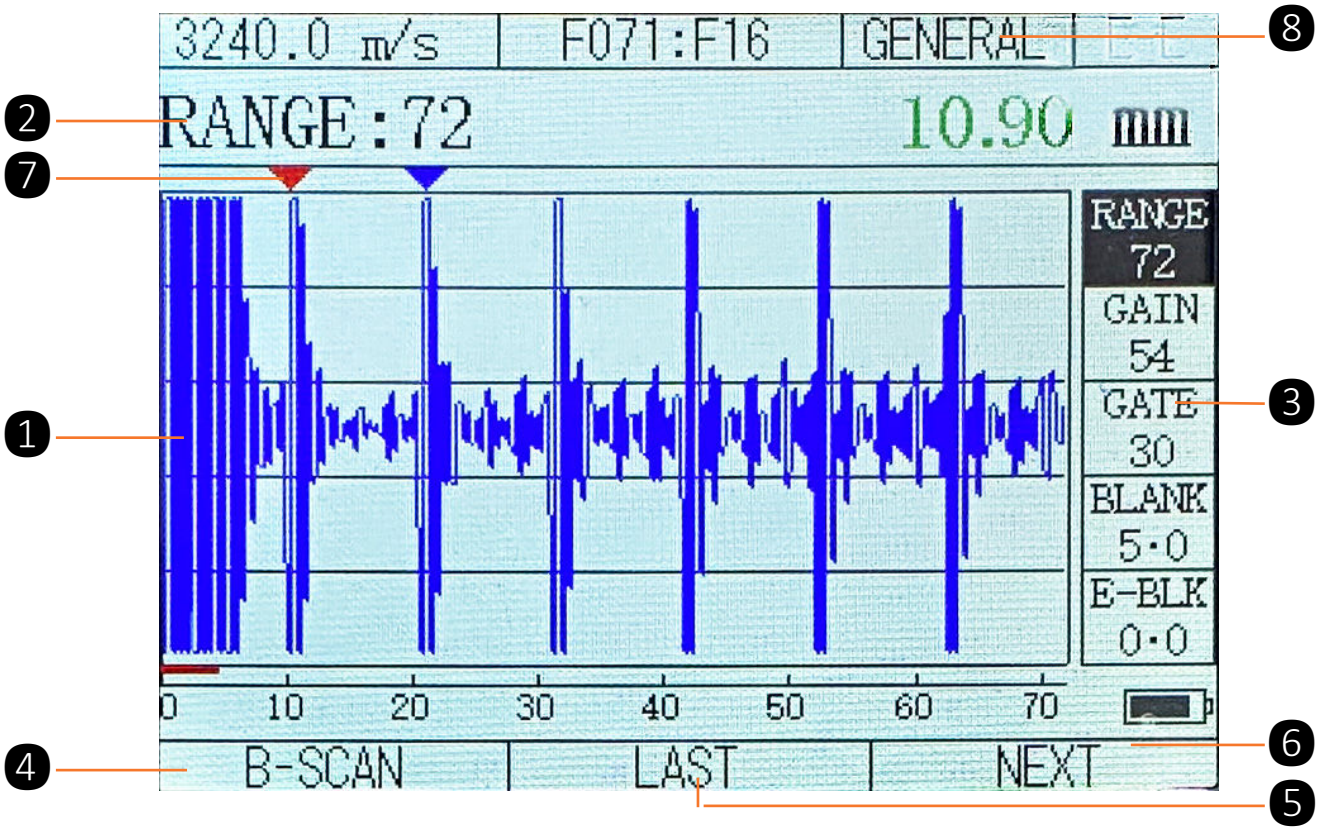
Maximum and Minimum Value Capture Mode

- In this mode, when the user continuously inspects the material thickness, it captures the minimum and maximum thickness values in real-time.

- Maximum Value Detected
- Minimum Value Detected

Operation Interface

A-Scan Interface

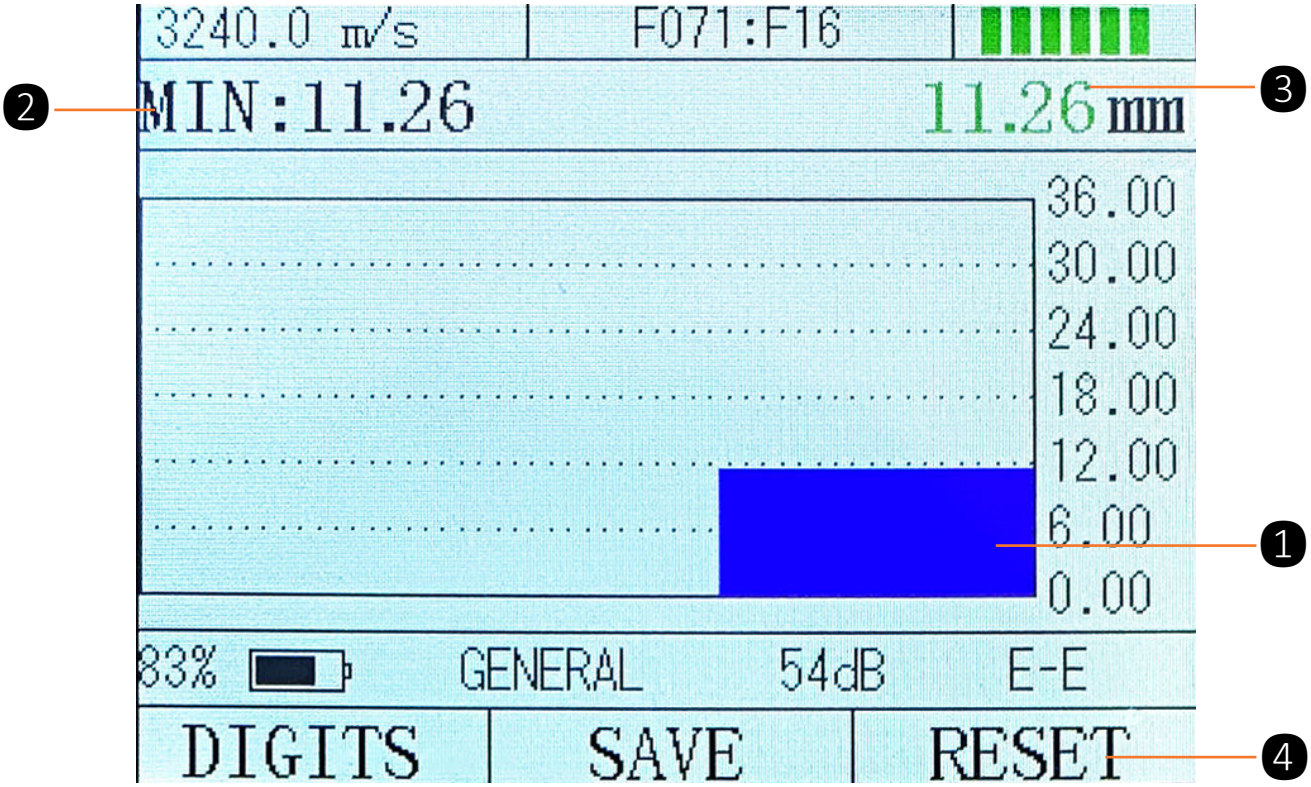


1.A-Scan Waveform Display **2.Current Thickness Range** **3.A-Scan Parameters**
4.B-Scan Interface Identification **5.Switch to Previous Item**
6.Switch to Next Item **7.Triangle Icon Pointing to Measurement Point**
8.Current Probe Model

- The user can directly view the colored ultrasonic signal waveform on the screen. By appropriately adjusting only three parameters: Gain (GAIN), Blanking (BLANKING), and Gate (GATE), based on the waveform, an accurate thickness reading can be obtained.

Operation Interface

B-Scan Interface



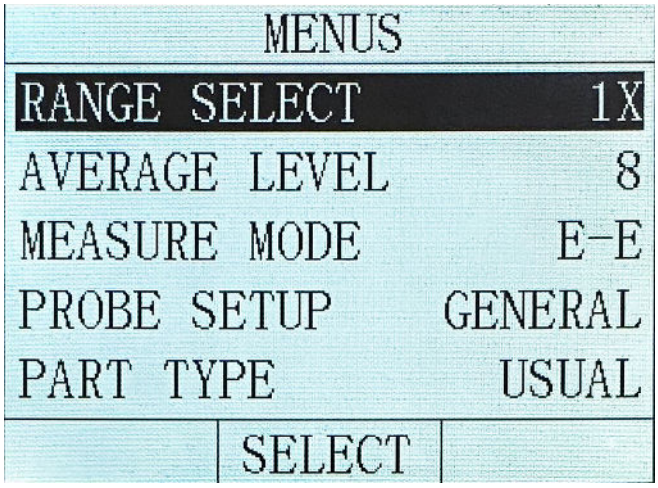
1.B-scan Waveform Image **2.Minimum Thickness Value in Current B-Scan Image**
3.B-Scan Thickness Values **4.Reset B-Scan Image**

- The B-Scan function involves moving the probe along the surface of the workpiece while maintaining good coupling throughout the process. The image display area shows a cross-sectional view of the workpiece based on thickness values, allowing observation of the bottom contour of the tested workpiece.

Operation Interface

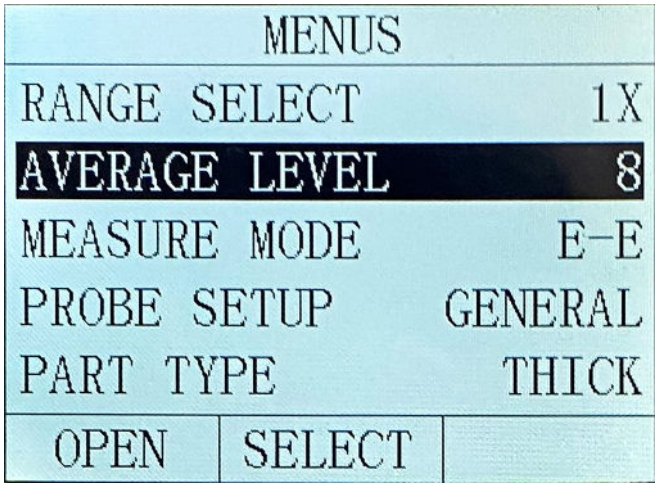
Range Selection

- Screen Display Menu Interface: This menu interface offers multiple parameter adjustment options, including Range Selection, Averaging Level, Rejection Level, Workpiece Type, Probe Type, Measurement Mode, Search Mode, Rectification Mode, Review Mode, File Number, Function Configuration, Parameter Configuration, and System Configuration.



- Allows switching between three measurement ranges: 1X, 2X, and 3X. The measurement range for 1X is 130mm, 2X is 520mm, and 3X is 2100mm.

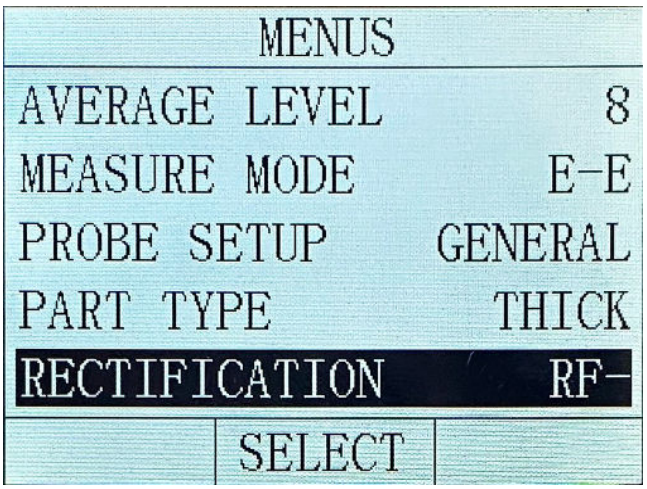
Averaging Level



- Eliminates noise signals in the A-scan waveform and is divided into seven levels: 1, 2, 4, 8, 16, 32, and 64. A higher averaging level results in more averaging iterations, higher signal-to-noise ratio, and slower calculation speed.

Operation Interface

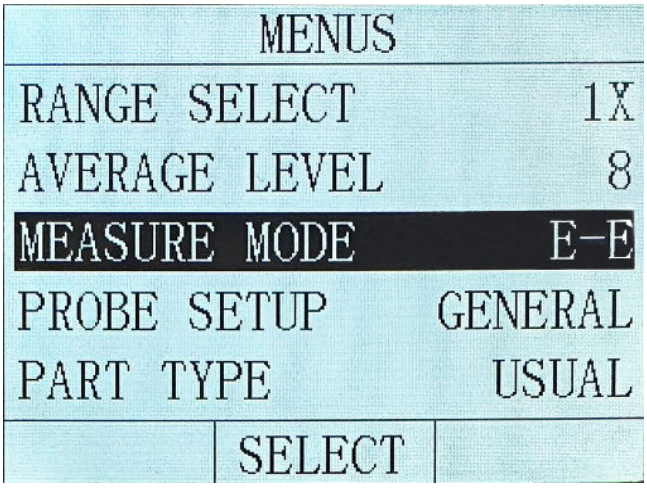
Rectification Mode



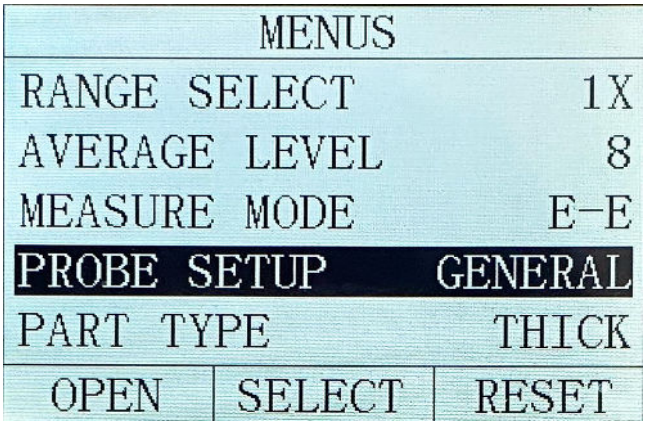
- Sets the rectification mode for the A-scan waveform. There are six display modes available: RF Wave, Phase-Inverted RF, Positive Half-Wave, Negative Half-Wave, Full Wave, and Envelope Wave. The default setting is RF Mode.

Measurement Mode

- This device offers two modes: E-E (Echo-Echo) and I-E (Interface-Echo).



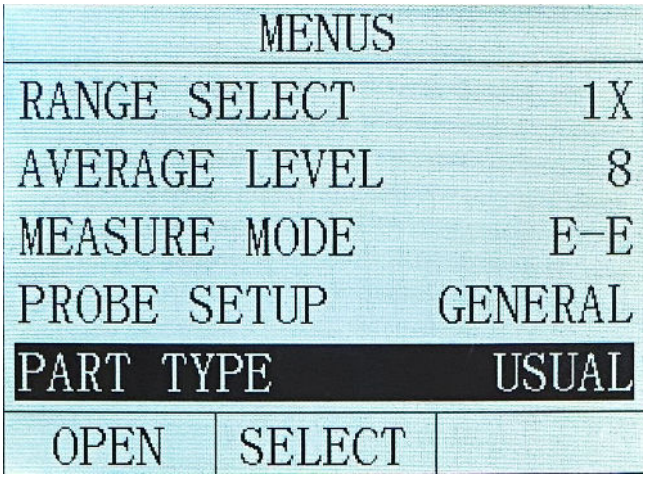
Probe Mode



- There are four types of probes in total: standard probe, small bore probe, high-temperature probe, and large lift-off probe;

Operation Interface

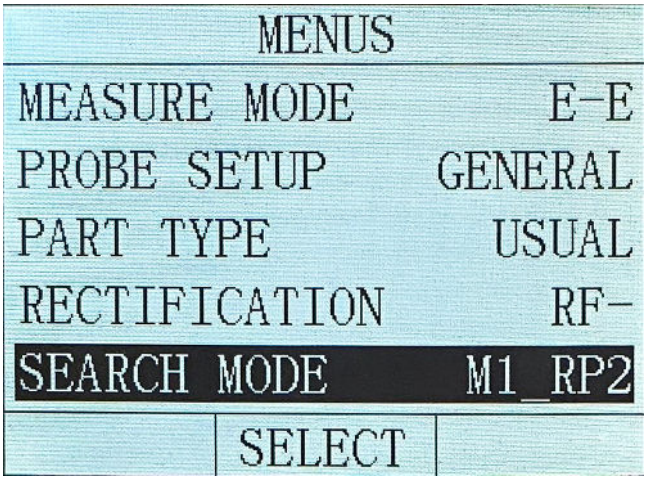
Workpiece Type



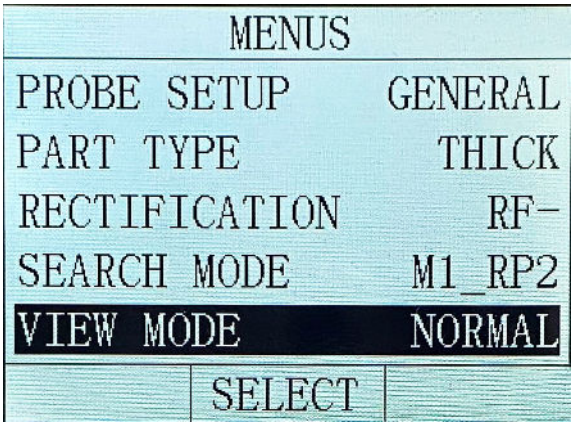
- The thickness of the workpiece to be measured is categorized into thin, standard, and thick.

Search Mode

- The search mode is divided into mixed, peak, and leading edge.



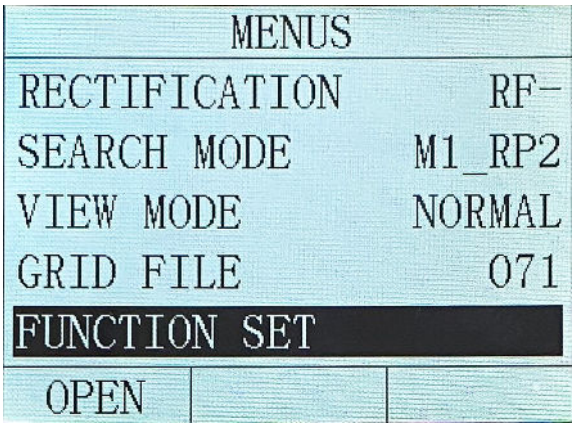
Review Mode



- The review mode includes three types, namely "NORMAL", "DIFFERENCE", and "MIN+MAX".

Operation Interface

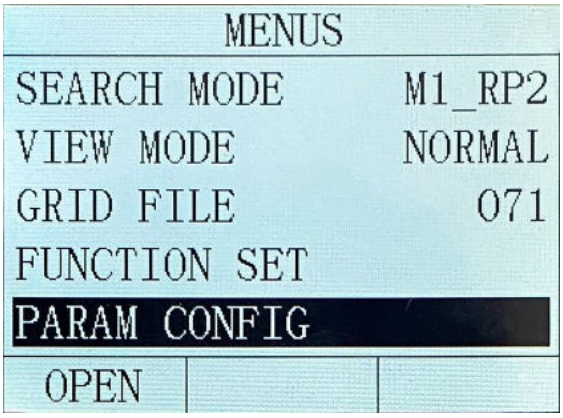
Function Configuration



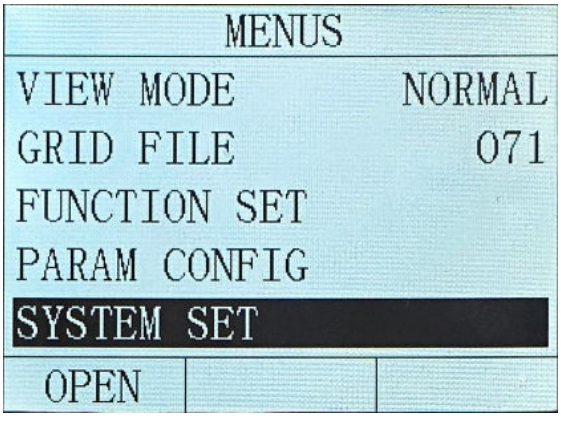
- Users can configure the instrument's measurement functions in this menu, including waveform fill, waveform freeze, automatic gain, automatic range, temperature compensation, and digital filtering.

Parameter Configuration

- Users can set the instrument's measurement parameters in this menu, including nominal thickness, upper alarm limit, lower alarm limit, upper B-scan limit, and lower B-scan limit.



System Settings



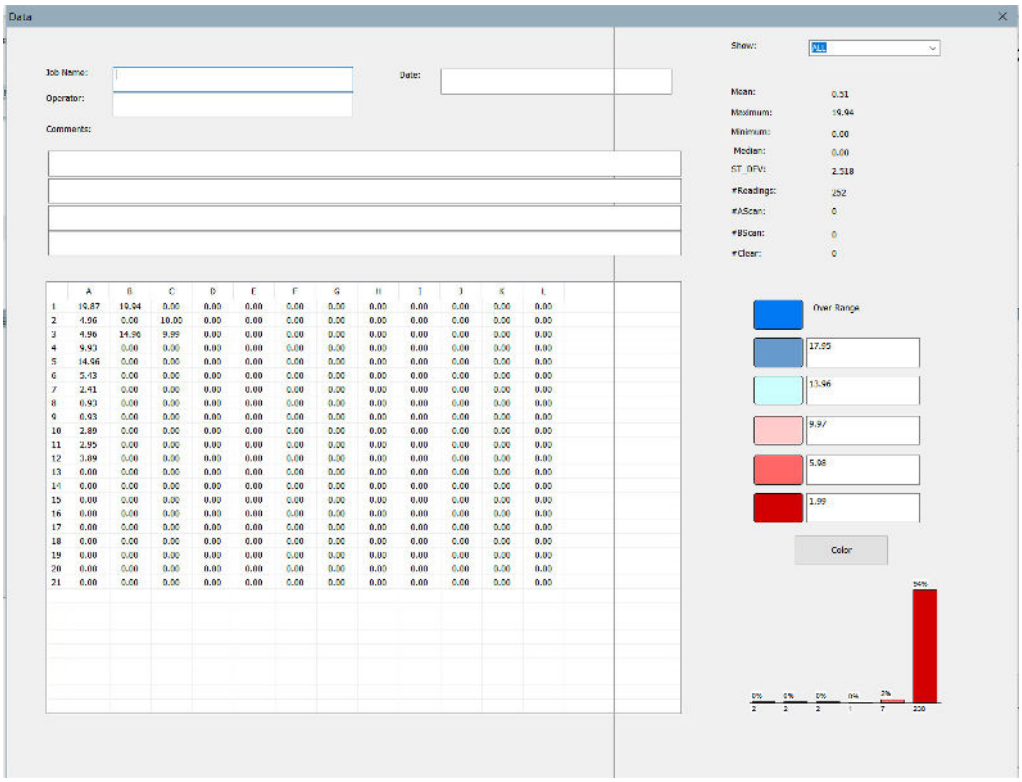
- Users can adjust the instrument's system settings in this menu, including units (metric, imperial), language (Chinese, English), resolution, buzzer settings, screen brightness, auto shut-off (5, 10, 20 minutes), product information, and restoring default settings.

Product Details

Lift-off Measurement

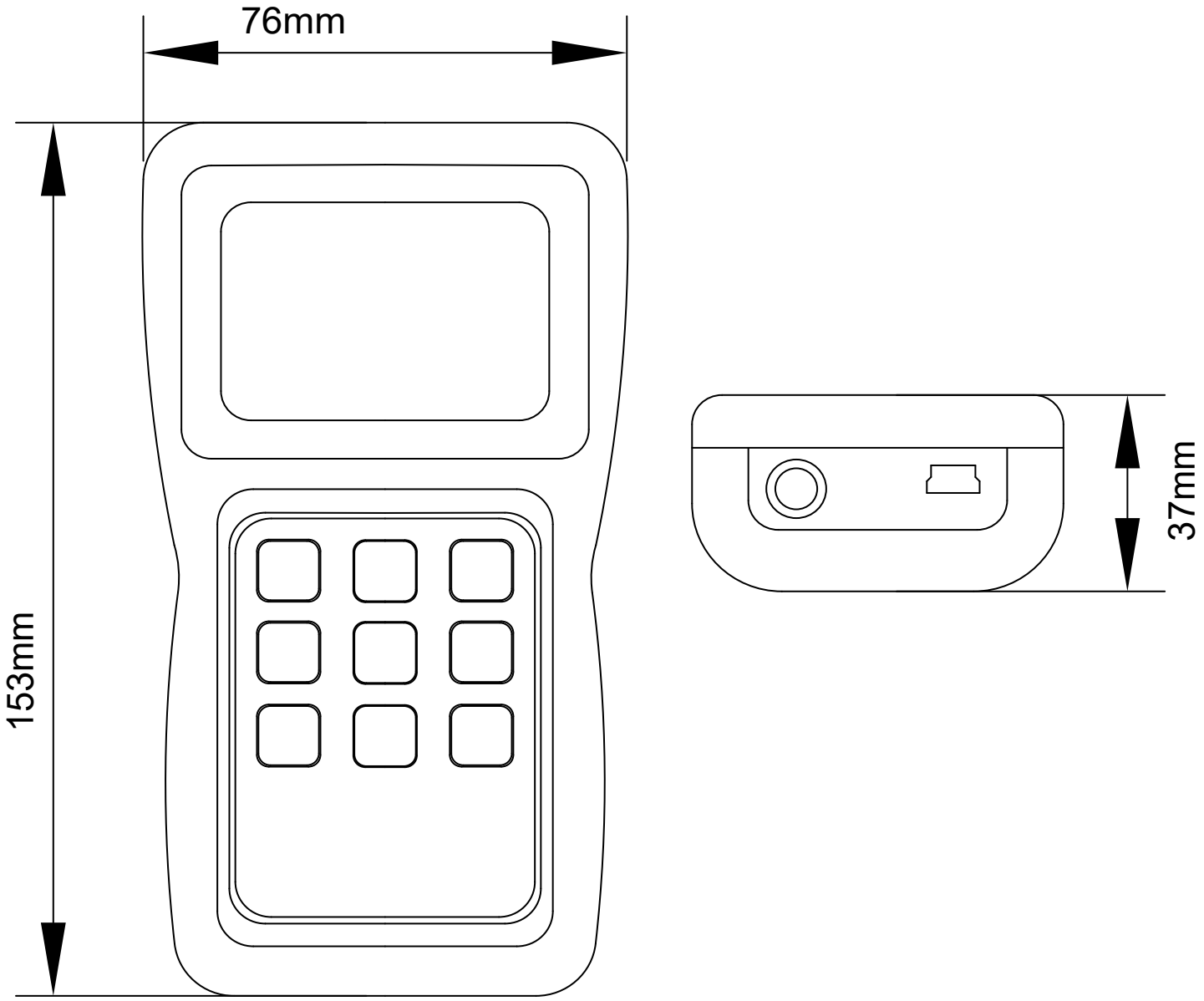
- The instrument is equipped with an electromagnetic ultrasonic probe, which contains a permanent magnet inside. It allows for a maximum lift-off of 6mm, enabling non-contact detection without damaging the workpiece being inspected.

Host Computer Software Connection



- The instrument has a powerful software connection function, which can perform statistics, analysis, archiving, and report printing on data.

Instrument Dimension



Technical Specification

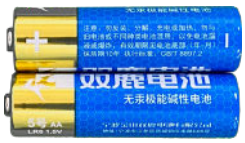
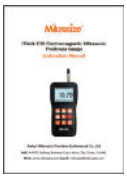
Sampling Rate	100MSPS
Bandwidth	1~10MHZ
Gain	96dB, with a step of 1dB
Transmit Voltage	±600V (non-adjustable)
Transmit Pulse Width	25~300ns, with a step of 5ns
Transmit Frequency	100~1000Hz, with a step of 100Hz
Measurement Accuracy	±0.01mm
Sound Velocity Range	400~9999m/s
Effective Measuring Range	1.0~2000mm
Averaging Level	Low, Medium, High
Lift-off Distance	6mm (Aluminum), 5mm (Carbon Steel), 4mm (Stainless Steel)
Measurement Range	Carbon Steel - 1X
Measurement Types	Molybdenum, Copper, Iron, Carbon Steel, Cast Steel, Alloy Steel, Stainless Steel, Titanium Alloy, and other metallic materials
Measurement Channels	Thin, Standard, Thick
Review Modes	Normal, Difference, Peak Capture

Mikrosize®

Technical Specification

Measurement Modes	Single Echo (1-E), Dual Echo (E-E)
Search Modes	Leading Edge-Leading Edge, Peak-Peak, Peak-Leading Edge
Rectification Modes	RF, Phase-Inverted RF, Full Wave, Envelope, Negative Half-Wave, Positive Half-Wave
Data Storage	Can save 520 files, each file can record 252 sets of thickness values, totaling 130,000 sets
Auxiliary Functions	Automatic Freeze, Automatic Gain, Automatic Sleep, A-Scan, Thickness B-Scan, Digital Filtering, Automatic Range Waveform Fill, Waveform Shift, Reject Adjustment, Backlight Adjustment, Buzzer
Correction Functions	Gate Adjustment, Blanking Adjustment, Gain Adjustment, Sound Velocity Calibration, Zero Calibration, High Temperature Compensation
Units	Metric, Imperial
Languages	Simplified Chinese, English
Communication	Full-speed USB 2.0
Charger	5V2A, Standard MINI-USB Interface
Display Screen	High-definition 2.4-inch 320x240 IPS LCD
Probe Interface	LEMO-0B 2P
Weight (Bare Machine)	250 grams, excluding battery
Body Dimensions	153mm x 76mm x 37mm
Battery Life	Two 3.7V 1000mAh lithium-ion batteries, providing up to 5 hours of operation

Standard Delivery

Name	Qty	Photo
Main Unit	1 pc	
Couplant	1 bottle	
3.7V Rechargeable Batteries	4 pcs	
Charging data cable	1 pc	/
Charging plug	1 pc	/
Instrument Case	1 pc	
User Manual	1 copy	
Warranty Card	1 copy	
Qualification Certificate	1 copy	

Optional Delivery

Optional	Probe
	Protective Leather Case
	High-Temperature Probe(4MHz, Φ42mm*57mm)
	Room Temperature Probe(4MHz, Φ30mm*40mm)
	Small Diameter Room Temperature Probe(4MHz, Φ13mm*36mm)
	Large Diameter Room Temperature Probe(4MHz, Φ40mm*60mm)

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