Mikrosize®

iThick-700

Ultrasonic Thickness Gauge

Video

Contact us

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Features and Applications

The Thick-700 ultrasonic thickness gauge is based on the principle of pulse reflection ultrasonic measurement. It is suitable for measuring the thickness of various materials that allow ultrasonic waves to propagate at a constant speed and can reflect ultrasonic waves on the back. It can accurately measure various plates and processed parts and is widely used in fields such as petroleum, chemical industry, metallurgy, shipbuilding, aviation, and aerospace. Depending on different application scenarios, it is divided into basic type, high-temperature type, cast iron type, and precision type.

Product Features

- By using the "echo - echo" technology, the coating thickness can be measured to determine the actual thickness of the body. The single crystal probe enables the measurement limit to reach 0.15mm, ensuring precise measurement even for thin components.
- There are three measurement modes: AUTO, I-E, and E-E. They can automatically switch according to conditions, ensuring both the accuracy and applicability for different thickness workpieces.
- Supports sonic velocity calibration and reverse calculation. By using a known thickness test block, accurate sonic velocity can be obtained, reducing errors caused by material differences.
- It has the function of data storage. Each of the 5 files stores 100 sets of data, including thickness values and time, which is convenient for subsequent viewing and analysis.
- Adaptable to various scenarios, available in basic and high-temperature models, applied in multiple fields such as petroleum and aviation, the coupling agent can be flexibly selected to adapt to different surfaces.
- The operation is user-friendly. It supports multiple languages including Chinese and English. The units can be set to either metric or imperial systems. It has an alarm function and a low battery indication feature to facilitate timely battery replacement.

Features and Applications

Product Applications

- In the petrochemical industry, it is possible to measure the wall thickness of pipelines and containers, monitor the corrosion situation, and ensure the safe operation of equipment.
- In the metallurgical industry, it is used for thickness measurement of plates and castings to control the specification accuracy of materials during the production process.
- In the shipbuilding industry, thickness measurements are conducted on ship body steel plates and other components to ensure that the structural strength of the vessels meets the standards.
- In the aviation field, the thickness of aircraft components is measured to ensure their reliability in the high-altitude and high-pressure environment.
- In the aerospace field, precise measurement of the thickness of spacecraft materials is necessary to meet the stringent requirements for material performance in extreme environments.
- In mechanical processing, the thickness of various processed parts is inspected to ensure that the dimensions of the parts conform to the design standards.

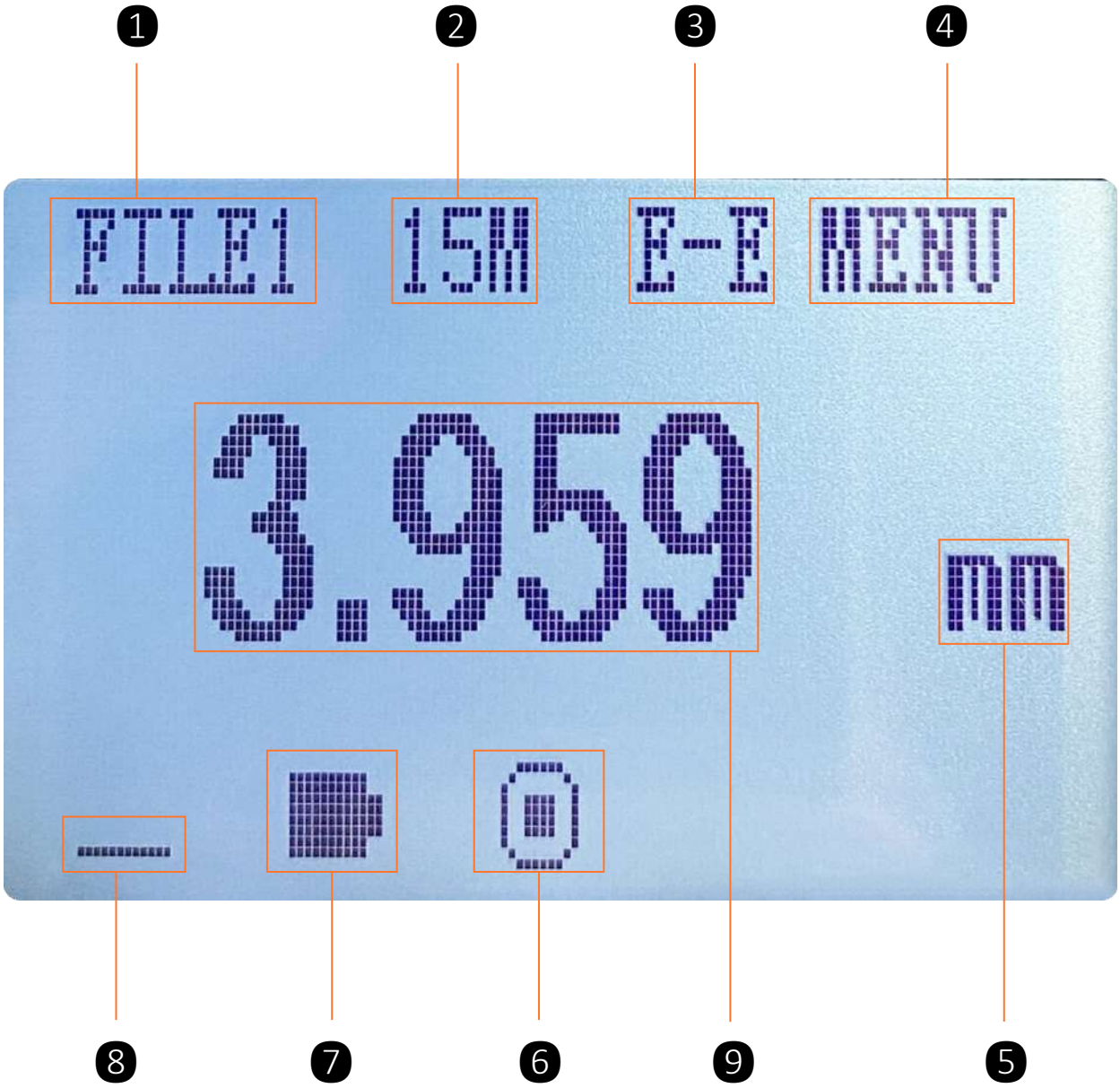
Product Details

1.Screen	2.Keyboard	3.Reference block	4.Probe

1.Battery	2.Battery Compartment	3.Battery Cover

Product Details

Screen Content



1.Current File Number (There Are A Total Of Five Files)

2.Probe Frequency 3.Measurement Mode (Auto/Ie/Ee) 4.Menu

5.Thickness Unit 6.Probe Type 7.Battery Power Level

8.Coupling Signal Indicator 9.Display Value

Product Details

Keyboard Content

1.Switch button	2.Menu button	3.Calibration button
4.Confirm button	5.Sound speed button	6.Save button
7.Backlight button	8.Up button	9.Down button

Operation Interface

Test Mode

- E-E measurement method: The advantage is that the measurement accuracy and stability are relatively high. Although the measurement upper limit is relatively small, it can provide reliable data for scenarios with high requirements for measurement result accuracy.
- I-E measurement method: The advantage lies in its ability to measure thicker test blocks. Although it is significantly affected by the coupling degree, it can meet the measurement requirements for objects with larger thickness.
- AUTO measurement mode: The advantage lies in that the instrument can automatically determine and select the I-E mode and E-E mode based on the measurement conditions, and it prioritizes the E-E mode. There is no need for manual switching, making the operation more convenient.

Operation Interface

Difference Mode

- The iThick-700 ultrasonic thickness gauge can be set to the difference mode. After the user inputs the target value, the screen will display the difference between the measurement result and the target value during the product measurement process, making it convenient for the user to quickly compare the difference between the product and the target value.

Operation Interface

Single-Point Calibration

- Single-point calibration can quickly adjust the measured value to the actual thickness through a known thickness test block when the sound velocity setting is correct and the I-E method is adopted. It effectively corrects errors and is suitable for situations with large errors.
- The operation is very convenient. Just couple the test block to obtain the stable value, then freeze it, adjust to the actual thickness and confirm, and it can be completed without any complex steps.
- Highly targeted, specifically functioning under the I-E measurement method, it can precisely meet the measurement requirements of this mode and enhance the measurement accuracy in specific scenarios.

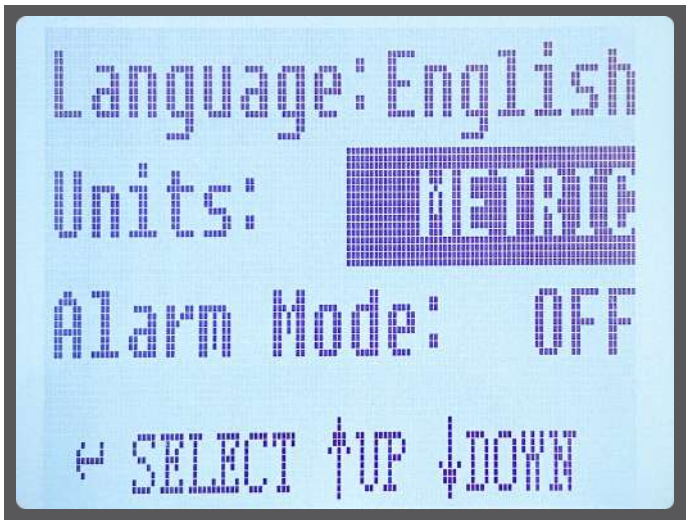
Operation Interface

Sound Speed Calibration

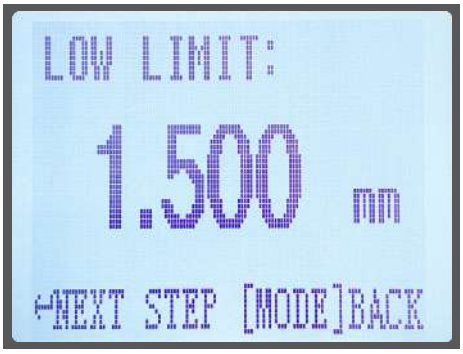
- The sound velocity calibration can calculate the sound velocity of the material based on the known thickness test block. Once the calculation is successful, the sound velocity will be stored in the current storage unit, providing a precise sound velocity reference for subsequent measurements.
- It can solve the problem of uncertainty in the measured sound velocity. By calibrating with known thickness test blocks of the same material, it reduces the measurement error caused by unclear sound velocity.
- It can cope with the situation where the sound speed varies with temperature. By calibrating and updating the sound speed value, it ensures the accuracy of measurements under different temperature conditions.

Operation Interface

System Settings



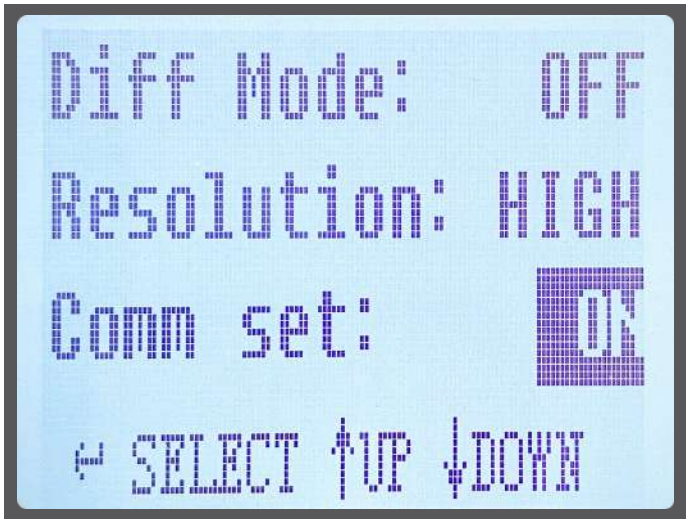
- Supports switching between Chinese and English languages;
- The unit supports switching between metric and imperial systems, which is suitable for use in different regions.



- The alarm function can trigger a buzzer to alert when the measured value is below the lower limit or above the upper limit, enabling timely detection of over-limit situations and ensuring that the measured object meets the preset standards.
- The alarm upper and lower limits can be flexibly set according to the requirements, and the upper limit is not less than the lower limit. This design can meet the measurement requirements of different scenarios and enhances the targeted use.

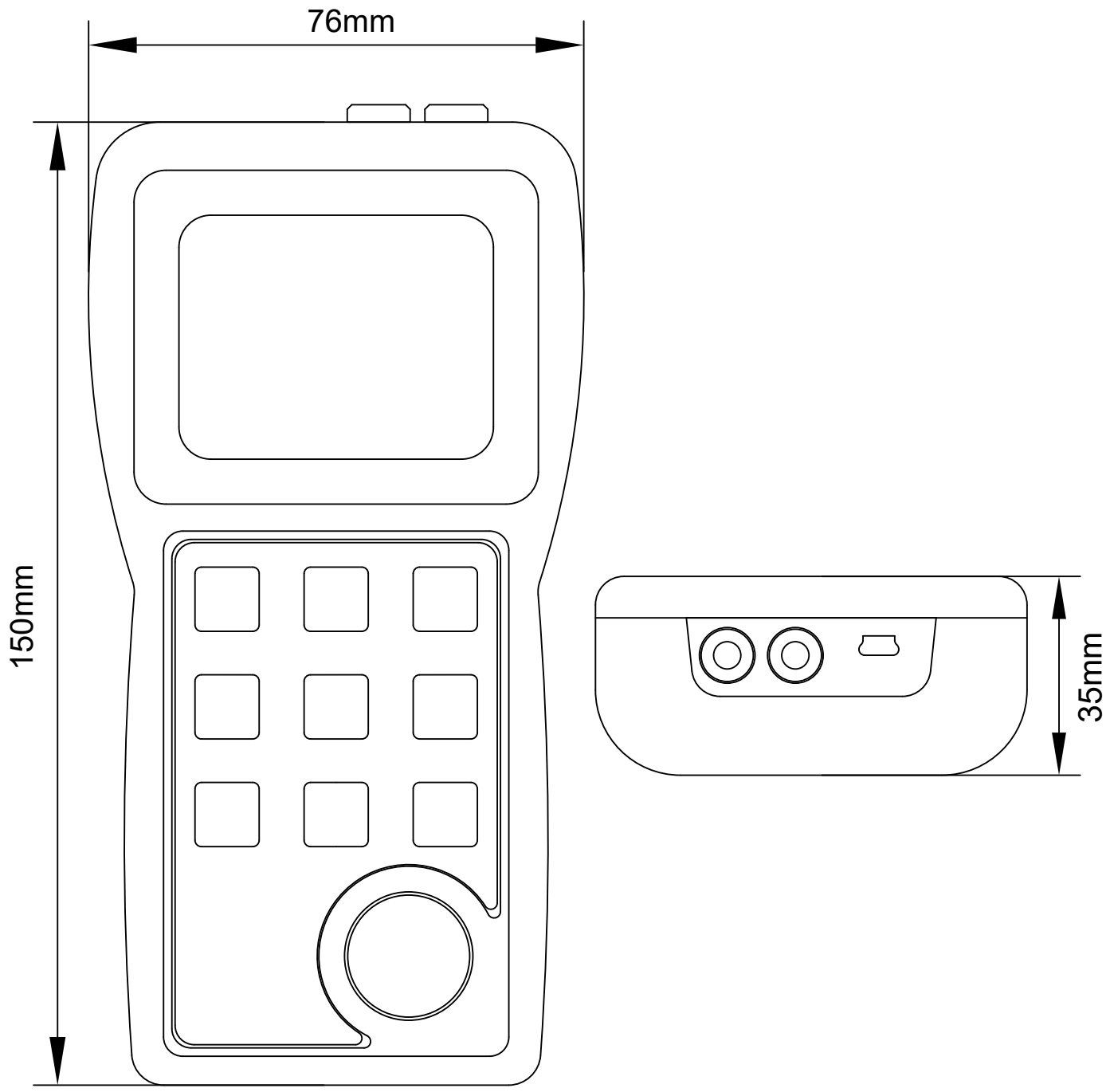
Operation Interface

System Settings



- Beeper: When activated, the instrument will emit a warning sound to promptly indicate the operation status. When turned off, it can enable quiet operation, meeting the requirements of different environments.
- Resolution: The instrument can adjust the display resolution to low, medium, and high levels. The maximum display resolution reaches 0.001mm, enabling precise presentation of the thickness of the measured material and providing accurate data support for high-precision measurement scenarios.
- Serial port can be configured, allowing connection to mobile phones or computers.

Instrument Dimension



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Technical Specification

Measurement Range	0.15~20mm
Measurement Mode	EE/IE/AUTO
Measurable Material	Steel, iron, glass, plastic, aluminum, etc.
Storage Capacity	500 sets of data
Support Language	Chinese/English
Environmental Humidity	Relative humidity is less than 90%.
Product Size	151*76*33mm
Precision	H<10mm±0.005mmH≥10mm+(0.005mm+H/100)mm
Display Screen Size	2.4-inch FSTN, LED backlight
Sound Velocity Range	1000~9999m/s
Measurement Unit	Metric/American System
Working Temperature	0~50℃
Power Supply	2 x 1.5V dry batteries
Product Weight	220g

Standard Delivery

Name	Qty	Photo
Host Machine	1 pc	
15m Single Crystal Probe	1 pc	
Coupling Agent	1 pc	
Dry Cell	2 pcs	
Instrument Sealed Box	1 pc	
Screwdriver	1 pc	
User Manual	1 pc	
Warranty Card	1 pc	
Certificate of Conformity	1 pc	

Appendix: Sound Velocity Ratios

Materials	Speed of Sound (m/s)
Aluminum	6320
Zinc	4170
Silver	3600
Gold	3240
Tin	3320
Steel	5920
Brass	4430
Copper	4700
SUS	5970
Acrylic (Or Similar) Resin	2730
Water (at 20°C)	1480
Glycerol	1920
Silicic Acid Gelatinous Substance	2350