

# iThick-7000

## Ultrasonic Thickness Gauge



Video



## Contact us

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## Features and Applications

### Product Features

- Features A-scan, B-scan, and numerical display modes, with the numerical display mode including regular, differential, and maximum/minimum capture modes to meet various measurement requirements.
- Equipped with automatic ranging, automatic freeze, automatic E-blanking, automatic gain, and other functions to enhance measurement convenience and accuracy.
- Thickness alarm function: Changes the color of thickness values and sounds a buzzer alarm when measurements exceed the upper or lower limits. Probe coupling prompt: Displays thickness values in white font and sounds a buzzer prompt when coupling is good.
- Bandwidth of 1MHz-20MHz, gain of 72dB with step adjustment, automatically adjustable averaging times, multiple selectable update rates, diverse filters, abundant probe types, multiple measurement modes, and an effective range of 0.15-3200mm (longitudinal wave in carbon steel).
- Can save 520 files, with each file recording 252 sets of thickness values, totaling 130,000 sets. Uses a grid file format for easy access and selection of storage locations.
- Includes functions such as automatic shutdown (sleep mode), buzzer alarm, upper computer communication, backlight adjustment, etc., to adapt to various working environments and needs.
- The keyboard has 9 clearly defined keys for easy operation. The menu interface allows adjustment of multiple parameters, such as measurement range and mode.
- Includes bundled Data View upper computer software for data statistics, analysis, archiving, and report printing.

### Product Applications

- Used to measure the thickness of metal products such as steel plates and aluminum plates, ensuring the precise thickness of products like automobile body panels and aircraft frames.
- Can measure the thickness of concrete columns and walls to assess their strength, check the thickness of floor concrete to ensure uniformity, and is also used for metal corrosion inspection to measure thickness reduction due to external corrosion in a non-destructive manner.
- Measures the thickness of metal pipes, containers, and plates to provide important data for quality control during production processes. Detects material uniformity and defects in welding, casting, and other processes.



## Instrument Appearance



1.Screen

2.Keyboard

3.Zero Calibration Block



**1.Virtual Function Buttons:** Execute the functions indicated at the corresponding positions on the screen;

**2.Storage Button:** Press briefly to toggle between the menu interface and the thickness measurement interface; Press and hold to store data;

**3.On/Off/Calibration Button:** Press briefly to activate the calibration function; Press and hold to power on/off the device;

**4.Up Button;**

**5.Down Button;**

**6.Left Button;**

**7.Right Button;**

## Operation Interface

### Normal Mode



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 Power Display
6. Material Sound Velocity
7. Thickness Value Storage Number

### 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.
- 1. Nominal Value
- 2. Difference Value
- 3. Drawdown Rate

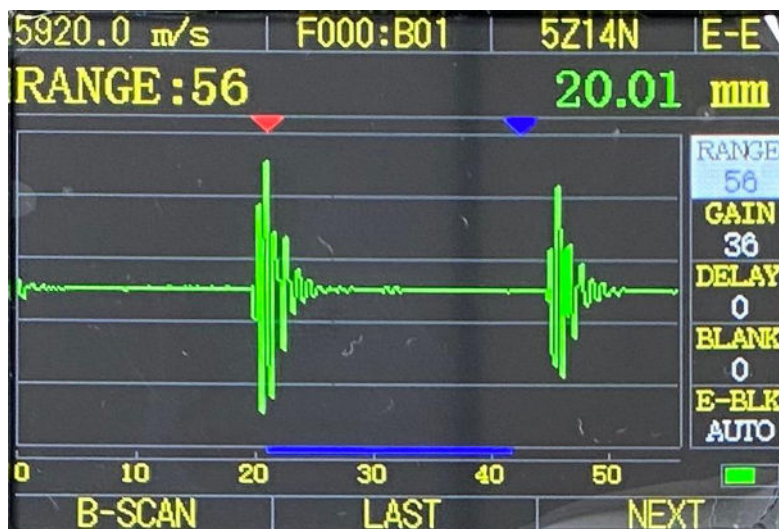
## Operation Interface

### Maximum 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.
- 1.Thickness Reading
- 2.Maximum Value Detected
- 3.Minimum Value Detected

### A-Scan Interface



- 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.

- |  |                           |                       |
|--|---------------------------|-----------------------|
| 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 Poin |                           | 8.Current Probe Model |

## Operation Interface

### B-Scan Interface



- 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.

1.B-scan Waveform Image  
3.B-Scan Thickness Values

2.Minimum Thickness Value in Current B-Scan Image  
4.Reset B-Scan Image

## Operation Interface

### Screen Display Menu Interface:

- This menu interface provides multiple parameter adjustment options, including range selection, measurement mode, view mode, detection mode, probe type, file number, function configuration, parameter configuration, and system settings;

### Range Selection

- Sets the measurement range, with seven options to switch between: 0X, 1X, 2X, 3X, 4X, 5X, and 6X; the range spans from 50mm to 3200mm;



### Measurement Mode

- This device offers four modes: P-E (Pulse-Echo), E-E (Echo-Echo), ME-E (Multiple Echo), and I-E (Interface-Echo).

### View Mode

- The view mode includes three options: "Normal", "Difference", and "Maximum Value Capture".



## Operation Interface

### Rectification Mode



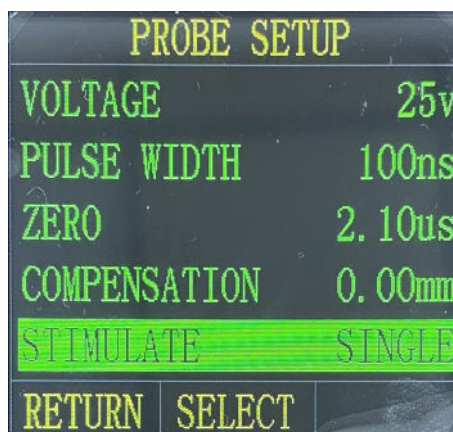
- Sets the detection mode for the A-scan waveform. There are five display modes available: RF (Radio Frequency), Phase-Reversed RF, Positive Half-Wave, Negative Half-Wave, and Full Wave. The default setting is RF mode.

### Probe Mode

- The instrument is equipped with built-in single-crystal and dual-crystal probes. The probe frequency range is from 2.5 to 15 MHz, and the crystal size ranges from 6 to 20 mm.



### Probe Type



- This mode allows for modification of probe parameters, including averaging, filtering, voltage, pulse width, zero point, compensation, and excitation.

## Operation Interface

### Grid File

MENUS	
PROBE TYPE	5Z14N
GRID FILE	000
FUNCTION SET	
PARAM CONFIG	
SYSTEM SET	
OPEN	SELECT ERASE

000	A	B	C
01	22.42	---	---
02	21.27	---	---
03	22.30	---	---
04	---	---	---
05	---	---	---
RETURN	DELETE		

- This instrument features powerful storage capabilities, capable of storing up to 100,000 thickness values in a grid file format for easy access and selection of storage locations. The storage location can be selected arbitrarily through adjustment buttons. Data stored within the instrument can be imported into a computer via USB communication.

### Function Configuration

- Function configuration includes: waveform filling, waveform freezing, automatic gain, automatic range, automatic E blanking;

MENUS	
PROBE TYPE	5Z14N
GRID FILE	000
FUNCTION SET	
PARAM CONFIG	
SYSTEM SET	
OPEN	

FUNCTION SET	
WAVEFORM FILL	OFF
WAVEFORM FREEZE	OFF
AUTO GAIN	OFF
AUTO RANGE	OFF
AUTO E_BLANK	ON
RETURN	SELECT

### Parameter Setting

MENUS	
PROBE TYPE	5Z14N
GRID FILE	000
FUNCTION SET	
PARAM CONFIG	
SYSTEM SET	
OPEN	

PARAM CONFIG	
NOM THK	4.00mm
ALARM MAX	100.00mm
ALARM MIN	0.00mm
BSCAN MAX	36.00mm
BSCAN MIN	0.00mm
RETURN	SELECT

- This interface can set the nominal thickness, ranging from 0.2 to 33200mm
- Alarm upper/lower limit, ranging from 0 to 3200mm
- B scan upper/lower limit, ranging from 0 to 3200mm

### System Setting

- This interface can set the unit, language, resolution of the instrument. In the imperial system, you can set X.XXXX; update rate, up to 16Hz; buzzer, screen brightness, automatic shutdown, 5, 10, 20 minutes

MENUS	
PROBE TYPE	5Z14N
GRID FILE	000
FUNCTION SET	
PARAM CONFIG	
SYSTEM SET	
OPEN	

SYSTEM SET	
UNITS	MM
LANGUAGE	ENGLISH
RESOLUTION	X.XX
UPDATE RATE	16Hz
BUZZER	ON
RETURN	SELECT

## Operation Interface

### Host Computer Software Connection

Data
✕

Job Name:

Operator:

Date:

Comments:

Show: ALL ▾

Mean: 0.51

Maximum: 19.94

Minimum: 0.00

Median: 0.00

ST\_DEV: 2.518

#Readings: 252

#AScan: 0

#BScan: 0

#Clear: 0

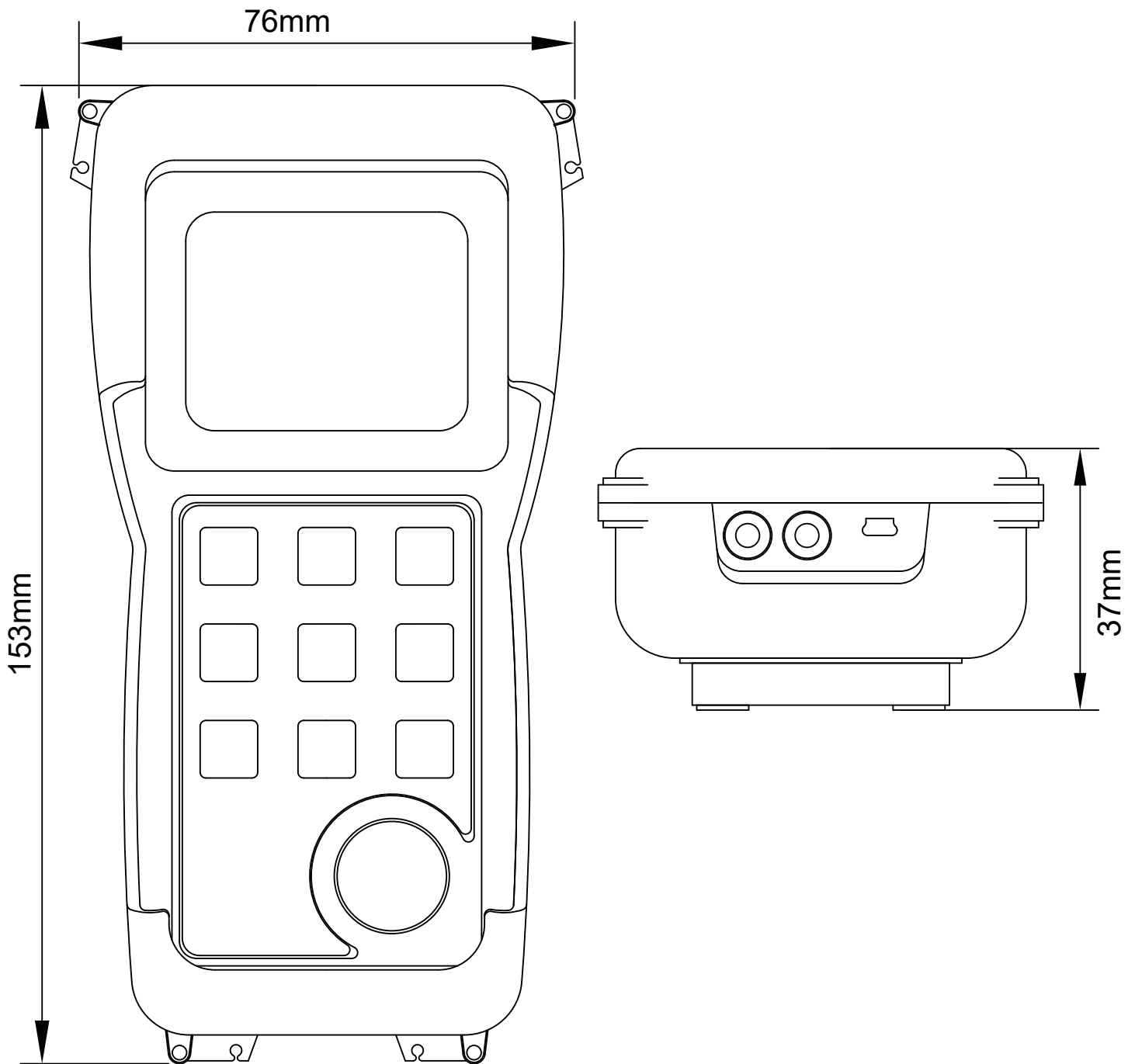
	A	B	C	D	E	F	G	H	I	J	K	L
1	19.87	19.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4.96	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	4.96	14.96	9.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	9.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	14.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	5.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	3.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Over Range

Percentage	Count
0%	2
0%	2
0%	2
0%	1
2%	7
94%	238

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

## Instrument Dimension



# Technical Specification

<b>Bandwidth</b>	1MHz~20MHz
<b>Receiving Gain</b>	72dB, step pace 1dB, 6dB
<b>Average</b>	Average number of times 0 to 64 automatically adjusted
<b>Update Rate</b>	4Hz, 8Hz, 16Hz
<b>Filter</b>	Broadband, 5M, 10M, 15M
<b>Probe Type</b>	single crystal, double crystal
<b>Pulse Mode</b>	Square waves, two-sided waves
<b>Transmit Voltage</b>	25V~300V, 25Vstep pace
<b>Pulse Width</b>	25ns~300ns, 5ns step pace
<b>Pulse Frequency</b>	400Hz-3200Hz auto-adjustment
<b>Specialized Function</b>	A-Scan, B-Scan
<b>Calibration Mode</b>	Automatic zero point calibration, automatic sound velocity calibration
<b>View Mode</b>	Normal, difference, maximum value capture
<b>Measuring Range</b>	0.15~3200mm(Longitudinal wave carbon steel)

# Technical Specification

<b>Detection Mode</b>	Full wave, positive half wave, negative half wave, RF, Invert to RF
<b>Measurement Mode</b>	P-E(pulse-echo), E-E(echo-echo), I-E(interface-echo), ME-E(multiple echo)
<b>Detection Range</b>	0X-25mm(steel), 1X-100mm(steel), 2X-200mm(steel), 3X-400mm(steel), 4X-800mm(steel), 5X-1600mm(steel), 6X-3200mm(steel)
<b>Data Storage</b>	520 files can be saved, each file can record 252 sets of thickness values, for a total of 130,000 sets.
<b>Auxiliary Functions</b>	Auto Gain, Auto Range, Auto Blanking E, Auto Freeze, Auto average, Auto Shutdown (Hibernation), Buzzer alarm, upper computer communication, Backlight Adjustment
<b>Unit</b>	Metric system, English system
<b>Language</b>	Chinese, English
<b>Probe Interface</b>	DUAL LEMO-00 C5
<b>Weight</b>	228g, no battery
<b>Battery</b>	Two 1.5V AA batteries
<b>Output Interface</b>	MINI USB, data export to the host computer
<b>Size</b>	153mm×76mm×37mm
<b>Display Screen</b>	2.4-inch 320×240 IPS_LCD
<b>Working Temperature</b>	-10°C~55°C

## Standard Delivery

Name	Qty	Photo
Main Unit	1 pc	
Alkaline Battery	2 pcs	
Coupling Agent	1 bottle	
Screwdriver	1 pc	
Instrument Case	1 pc	/
User Manual	1 copy	
Warranty Card	1 copy	
Product Certificate	1 copy	

## Optional Delivery

Name	Qty
Software	1 pc
USB Cable	1 pc

Model	TC510	5Z14N	DL15
Product Certificate	double crystal 5M	single crystal 5M	single crystal 15M
Instrument Case	5MHz	5MHz	15MHz
User Manual	10mm	20mm	6.35mm
Warranty Card	1~400.0mm	4~3200.0mm	0.15~25.0mm
Product Certificate	-10~70°C	-10~70°C	-10~70°C
Product Certificate	