

# JITAI5103 Through Coating Ultrasonic Thickness Gauge



## I. Introduction

Ultrasonic Thickness Gauge measuring with ultrasonic wave, is applicable for measuring the thickness of any material in which ultrasonic wave can be transmitted and reflected back from the other face.

The gauge can provide quick and accurate measurement to various work pieces such as sheets of board and processing parts. Another important application of the gauge is to monitor various pipes and pressure vessels in production equipment, and monitor the thinning degree during using. It can be widely used in petroleum, chemical, metallurgy, shipping, aerospace, aviation and other fields.

## II. Technical Specifications

- Display:128\*64 LCD with LED backlight
- Through coating measurement for gauging thickness of a painted object without removing the nonmetal coating
- Measuring Range:(0.75~600)mm(Steel),Measuring Range(Through Coating):3-25mm
- Velocity Range:(1000~9999) m/s
- Resolution:0.01mm
- Measuring accuracy: $\pm(0.5\%H+0.04\text{mm})$ ;H is thickness value
- Measurement cycle:Single point measurement 6 times/per
- Storage:40 values of saved data



- Power Source:2pcs 1.5V AA size
- USB Port
- Working Time:more than 50 hours (LED backlight off).
- Outline Dimensions:145mm\*74mm\*32 mm
- Weight:245g

### III. Main Functions

- Capable of performing measurements on a wide range of material, including metals,plastic,ceramics,composites,epoxies,glass and other ultrasonic wave well-conductive materials
- Can collocate variety different frequencies,wafer sizes of probes
- Sound Velocity Calibration function as a known thickness
- Coupling status indicator showing the coupling status
- EL backlight, and convenience to use under dark environment
- Have the battery indicator function, can real-time display the remaining power
- Auto sleep and auto power off function to conserve battery life
- Smart, portable,high reliability, suitable for bad environment, resist to vibration, shock and electromagnetic interference

### IV. Primary Theory

The digital ultrasonic thickness gauge determines the thickness of a part or structure by accurately measuring the time required for a short ultrasonic pulse generated by a transducer to travel through the thickness of the material,reflect form the back or inside surface, and be returned to the transducer.The measured two-way transit time is divided by two to account for the down-and-back travel path,and then multiplied by the velocity of sound in the material.

The result is expressed in the well-known relationship:

$$H = \frac{v \times t}{2}$$

Where: H—Thickness of the test piece.  
v---Sound Velocity in the material.  
t----The measured round trip transit time.



## V. Standard Configuration

	No.	Name	QTY	Notes
Standard Configuration	1	Main Body	1 set	
	2	Standard Probe(5MHz,D10mm)	1 pc	
	3	Couplant	1 pc	empty
	4	ABS Case	1 pc	
	5	Product Certificate	1 pc	
	6	Warranty Card	1 pc	
	7	Manual	1 pc	
	8	1.5V AA size battery	2 pcs	none

## VI. The choice to probes

Name	Model	Fre	Dia	Testing Range	Min.area $\phi$	Application
Large diameter probe	N02	2.5	14mm	3.0mm~400.0mm(steel) Below 40mm(Gray Iron )	20mm	casting work piece
Large range probe	N02	2	14mm	3.0mm~600.0mm(steel) Below 100mm(Gray Iron )	20mm	casting work piece
Standard probe	N05/90°	5	10mm	1.0mm~230.0mm(steel)	$\Phi$ 20mm*3.0mm	General bent probe
Micro-diameter probe	N07	7	6mm	0.8mm~80.0mm(steel)	$\Phi$ 15mm*2.0mm	thin work piece
High Temperature Probe	HT5	5	14mm	3~200mm (steel)	30mm	high temperature