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ISU-300D
ULTRASONIC THICKNESS GAUGE
OPERATION MANUAL

PLEASE SCAN QR CODE TO WATCH THE OPERATION VIDEO OF PRODUCTS.

VIDEO

Attention

- In order to obtain good measurement precision, you need to clear away the rusty, sundry, grease, etc. on the working surface.
- Please use the couplant on the working surface, measure repeatedly around the target area and take average value.
- Please clean the couplant on the transducer and working surface after measure.
- Please don’t pull the transducer cable when use the instrument.
- Please don't apply couplant to the transducer before turning on.

Technical Specification

Measurement range	refer to specification of transducers
Resolution	0.01mm(0.001″), 0.1mm (0.01″)
Velocity range	1000m/s～9999m/s
Measurement rate	4 /s and 10/s in fast mode
Average mode	2 to 9 times average measurement
Limited setting	With Low-high indication and alarm
Measuring Units	mm / inch
Memory	Memory of 5000 readings with location number
Data output	USB to PC
Display	128×64 LCD with back light
Battery	2 x AAA Batteries
Operating temperature	-20℃～+50℃
Measuring temperature	-20℃～+350℃(according to the probes)
Dimensions	116mm (L)×64mm(W)×27mm (H)
Weight	0.22kg

Standard delivery

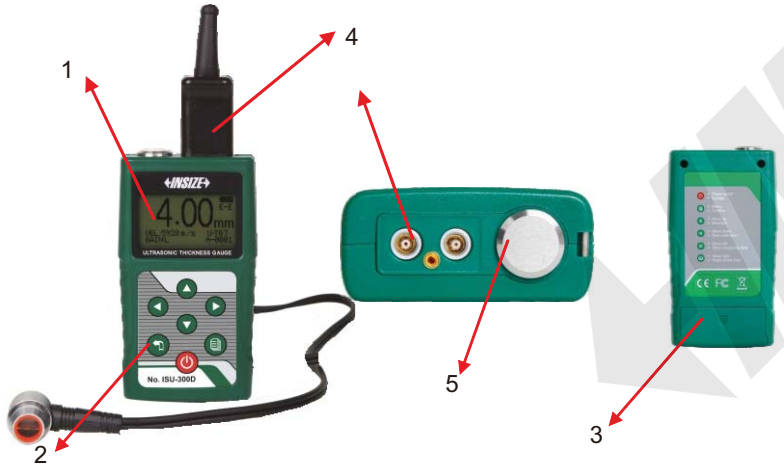
Mainunit	1pc
Transducer ISU-T07	1pc
Battery(AAA)	2pcs
Couplant (for ISU-T06, ISU-T07, ISU-T12, ISU-T04)	1bottle
USB cable and software disc	1pc of each

Optional Accessory

Transducer	ISU-T06, ISU-T12, ISU-T13, ISU-T04
Couplant (for ISU-T13)	ISU-HT5-COUPLANT

Codel	Measuring Range	Diameter(Ød)	Frequency	Temperature
ISU-T07	T-E: 1.5-200mm E-E: 3-25mm	13.2mm	5.0MHZ	-20~60° C
ISU-T06	0.7-50mm	9mm	7.5MHZ	-20~60° C
ISU-T12	2-400mm	17mm	2.0MHZ	-20~60° C
ISU-T13	3-100mm	15mm	5.0MHZ	0~350° C
ISU-T04	0.7-20mm	6mm	10MHZ	-20~60° C

Overview the display unit



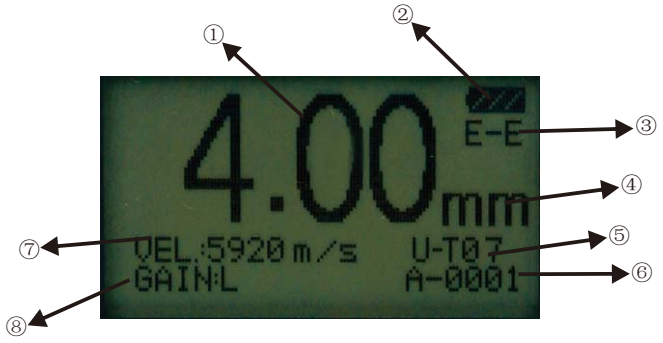
1. LCD Screen 2. Key Pad 3. Battery Pack 4. Transducer Port

5. 4.00mm Block

Key Functions

Key	Function
	--On/Off Key --Esc. Menu
	--Menu Key --Confirm Key
	--Up Arrow Key --Backlight Key
	--Down Arrow Key --Calibration Key
	--Left Arrow Key (Under the measurement)
	--Right Arrow Key (Under the measurement)
	--Read data --Storage Key

Display screen



① Measurement value
② Battery life
③ Measurement model
④ Resolution
⑤ Current transducer model
⑥ Current memory location
⑦ Current velocity
⑧ Gain setting

Basic gauge operations

1 Switch on

Press key to turn on the gauge.

2 Probe zero

◆ The gauge does an automatic zeroing of the transducer thus eliminating the need for an on-block zero. And then the gauge came into the measurement mode directly.

◆ Please make sure the transducer is not coupled to the test piece when the gauge is first turned on and that there is no coolant on the end of the transducer. The transducer should also be at the room temperature, clean without any noticeable wear.

3 Backlight

Press key to turn on / off the backlight.

4 Measurement setting

Press key into the measurment mode setting.
Press or key to select desired measurment mode.
Press key to confirm selection.
Press key to esc menu and into the measurement.
ISU-250C Ultrasonic Thickness Gauge offers two measurment modes, they are T-E mode and E-E mode.

1. T-E Mode

◆ Standard - It is available for the normal measurement.

◆ Minimum - The gauge will catch and display the minimum measured thickness during one measurement process. It is available for measuring the thickness of curve surface or pipe.

◆ Difference - The gauge will display a thickness value as an absolute number of what has been inputted. For example, input value = 5.00mm and the real thickness is 5.03mm, the display will show diff 0.03mm. If the real value is 4.97mm,the gauge will display -0.03mm.

◆ Average - The gauge will display the average thickness of 2-9 measurements.

◆ Limitation - The gauge will alarm you of low or high thresholds via audible sound.

◆ Scan - The gauge will alarm for each fast measurement. And will display the all measured thickness upon the complete measurement finished. It is available for measuring the thickness of test piece with high temperature surface.

2. E-E Mode

When the E-E mode is selected, only probe ISU-T07 is available. This function allows you to make measurement between two consecutive back wall echoes. Therefore, a good usage of the E-E option is for measuring through coatings (Max. 2mm) to measure only the true metal thickness.

5 Setting

1. Velocity rate

◆ Velocity setting
- Press key into“ VEL. SETTING” state.
- There are 9 velocities for materials pre-stored in gauge. You can select one by pressing or key.
- Press key to confirm.

◆ Velocity input
When the sound velocity of 9 materials is not satisfied with the requirements of the users, there is a sound velocity table which give the sound velocity of various materials in the appendix.
- Press key into “Velocity input ” state.
- Press or key to select the place where you want to store and put the new velocity.
- Press key to confirm.

◆ Velocity measurement
- Measuring the sample which thickness is known.
- Press key into“ Velocity measurement ”state.
- Press or key to up and down the value of velocity to determine the thickness as the same as the value of sample that is measured.
- Press key to confirm.

◆ Velocity store
- After you set the velocity, the instrument can store the velocity value.

2. Resolution

- Press key into“ Resolution ”.
- Press or to select resolution and unit.
  A. 0.1mm B. 0.01mm C. 0.01in D. 0.001in

- Press key to enter/confirm.

3. Calibration

- Press key into menu.
- Press or key into “Calibration”.
- Measure the test piece with known thickness.

If measured value is different than the known value of the test piece, adjust the measured value by pressing or key and then press key. The gauge will return to measure mode.

6 Memory

Press key into the menu.
Press or key into “ Memory”, the screen will display:
1. Memory unit 2. Memory read
3. Delete all memory 4. Date transfer
Press or key into the selected item, press key to confirm.

1. Memory unit

- The gauge has a memory capacity of 5000 measurements. The memory location was composed by alphabet A-Z + 0000-4900. You can select an Alphabet + an initial number freely for beginning to store the value and the next number will be followed automatically.
- Press key into the menu.
- Press or key to select Alphabet A-Z which you want.
- Press key to confirm.
- After taking every measurement, press key to store the value with a location number.

2. Memory read

- Press key into the menu - “Memory” - “Memory Read” (Under the measurement).
- Press or key to select desired Alphabet. Then the desired group of value can be readable by pressing or key.

3. Delete memory

- Delete all memory.

4. Date transfer

- Press key into the menu.
- Press or key into “Date Transfer”, the screen will display: The data can be transferred to PC using the data view and can be stored as DOC, TXT, Or Excel. For more detailed information, refer to the “Installation Manual” enclosed in the CD.

7 Function

Press key into the menu, the screen will display:
1. Power off 2. Gain adjustment 3. Language
4. Contrast 5. Default 6. Information
Press or key into the selected item, press key to confirm.

1. Power off

- Auto shut down after 1 Min. 3 Min. 5 Min. or Never can be selectable.

2. Gain adjustment

- Press key into the “Gain adjustment”, the screen will display: A. High B. Medium C. Low D. Automatic
- Press or key to select desired item.
- Press to confirm.

3. Language

- To change the language: English, Portuguese, Czech.

4. Contrast

- To change the contrast of the screen.

5. Default

- When the “ Default ”is selected , the gauge will recover the default parameter.

6. Information

- The screen displays the version number and transducer number.

Sound velocity

Material	Sound Velocity	
	Inch/μS	M/s
Air	0.013	330
Aluminum	0.250	6300
Alumina Oxide	0.390	9900
Beryllium	0.510	12900
Boron Carbide	0.430	11000
Brass	0.170	4300
Cadmium	0.110	2800
Copper	0.180	4700
Glass(crown)	0.210	5300

Glycerin	0.075	1900
Gold	0.130	3200
Ice	0.160	4000
Inconel	0.220	5700
Iron	0.230	5900
Iron (cast)	0.180	4600
Lead	0.085	2200
Magnesium	0.230	5800
Mercury	0.057	1400
Molybdenum	0.250	6300
Monel	0.210	5400
Neoprene	0.063	1600
Nickel	0.220	5600
Nylon, 6.6	0.100	2600
Oil (SAE 30)	0.067	1700
Platinum	0.130	3300
Plexiglass	0.110	1700
Polythylene	0.070	1900
Polystyrene	0.093	2400
Polyurethane	0.0700	1900
Quartz	0.230	5800
Rubber, Buty	0.070	1800
Silver	0.140	3600
Steel, Mild	0.233	5920
Steel, Stainless	0.228	5800
Teflon	0.060	1400
Tin	0.130	3300
Titanium	0.240	6100
Tungsten	0.200	5200
Uranium	0.130	3400
Water	0.584	1480
Zinc	0.170	4200