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**ISU-250C
ULTRASONIC THICKNESS GAUGE
OPERATION MANUAL**

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V0

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.

Technical Specification

Measurement range	0.8mm～300mm
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

Main unit	1pc
Transducer ISU-T08	1pc
Battery(AAA)	2pcs
Couplant (for ISU-T06, ISU-T08, ISU-T12)	1bottle
USB cable and software disc	1pc of each

Optional Accessory

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

Codel	Measuring Range	Frequency	Temperature
ISU-T12	2.0-400mm/0.08-16.00"	2.0MHZ	<60℃/140°F
ISU-T06	0.7-50mm/0.03-2.00"	7.5MHZ	<60℃/140°F
ISU-T08	0.8-300mm/0.03-12.00"	5.0MHZ	<60℃/140°F
ISU-T13	3.0-100mm/0.08-4.00"	5.0MHZ	<350℃/662°F

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 (Under the measurement)
	--Down Arrow Key --Calibration Key (Under the measurement)
	--Left Arrow Key --Storage Key (Under the measurement)
	--Right Arrow Key --Read data (Under the measurement)

Display screen
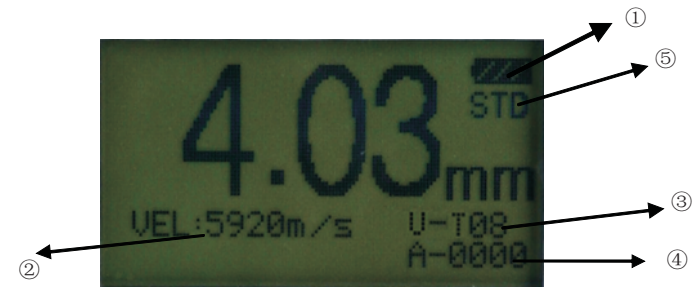
① [Battery indicator icon] Battery indicator
② Current velocity
③ Current transducer model
④ Measurement value and measurement mode
⑤ Current memory location

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 🔼 to turn on / off the backlight.

4 Parameters setting

◆ Measurement mode

• Press 📧 into the measurment mode setting.

• Press 🔼 or 🔽 to select desired measurment mode.

ISU-250C Ultrasonic Thickness Gauge offers two measurment modes, they are T-E Mode and Scan.

◆ T-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 4.97 m, 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.

• Press 📧 to confirm selection.
• Press 🔴 to Esc. Menu and into the measurment.

◆ Other parameters setting

Press 📧 and then press 📧 into the setting.

• Velocity rate

1)Velocity Setting

Press 📧 into" VEL. SETTING" state.

There are 9 velocities for materials pre-stored in gauge. You can select one by pressing 📧 or 📧 .

Press 📧 to confirm.

2)Velocity measurement

Measuring the sample which thickness is known.

Press 📧 key into" Velocity measurement "state.

Press 🔼 or 🔽 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.

3)Velocity store

After you set the velocity, the instrument can store the velocity value.

• Resolution

Press 📧 key into" Resolution ".

Press 🔼 or 🔽 to select resolution and unit.

1.0.1mm   2.0.01mm
3.0.01in   4.0.001in

Press ⊞ key to enter/confirm.
• Calibration
  Press ⊟ into menu.
  Press ▽ or △ 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 △
  and then press ⊟ . The gauge will return to measure mode.

• Memory
  Press ⊟ into the menu.
  Press △ or▽ into " Memory", the screen will display.
  1. Memory Unit   2. Delete ALL Memory
  Press △or▽ into the selected item, press ⊟ to confirm.
  1)Memory unit
  The gauge has a memory capacity of 5000 measurements.
  The memory location was composed by alphabet A-Z +
  0000-4999. You can select an Alphabet + an initial number
  freely for beginning to store the value and the next number
  will be followed automatically.

  After taking every measurement, press ◁ key to store the
  value with a location number.

  2)Memory read
  press ▣ Read (Under the measurement).
  Into the "Memory Read", Press ◁ and ▣ to select desired
  Alphabet, Press △ and▽ to select initial number. Then the
  desired group of value can be readable beginning from this
  initial number.

  3)Delete all memory
  Delete all memory.
• Date transfer
  Press ⊟ into the menu.
  Press △ or ▽ 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.

• Function

Press ⊟ into the menu, press △ or ▽ into "FUNCTION",
the screen will display:
1. Power off   2. Gain adjustment   3. Language
4. Contrast   5. Default   6. Information
Press △ or ▽ into the selected item, press ⊟ to confirm.
• Power off
  Auto shut down after 1 Min. 3 Min. 5 Min. or Never can be
  selectable.
• Gain adjustment
  Press ⊟ into the "Gain adjustment", the screen will display:
  1. High   2. Medium   3. Low   4. Automatic
• Language
  To change the language: English, Portuguese, Czech.
• Contrast
  To change the contrast of the screen.
  Press △ or ▽ to select desired item.
  Press ⊟ confirm.
• Default
  When the " Default "is selected , the gauge will recover the
  default parameter.
• Information
  The screen display the supplier info, 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

Specification Of Transducers

Code	Frequency	Diameter(Ød)	Measuring range
ISU-T08	5.0MHz	10.8mm	0.8-300mm
ISU-T06	7.5MHz	8.5mm	0.7-50mm
ISU-T12	2.0MHz	16.3mm	3-350mm
ISU-T13	5.0MHz	13mm	3-100mm

Code	Minimum size of pipe for measurement (diameter × wall thickness)	Applicable temperature	Application
ISU-T08	20×1.2mm	<60°C	general use
ISU-T06	15×1.2mm	<60°C	for thin material
ISU-T12	30×4mm	<60°C	for casting steel
ISU-T13	25×3mm	<350°C	for high temperature