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

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



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 |
| 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-COUPPLANT |

| Codel | Measuring Range | Frequency | Temperature |
|---------|-----------------------|-----------|---------------|
| ISU-T12 | 2.0-400mm/0.08-16.00" | 2.0MHZ | <60°C/140° F |
| ISU-T06 | 0.7-50mm/0.03-2.00" | 7.5MHZ | <60°C/140° F |
| ISU-T08 | 0.8-300mm/0.03-12.00" | 5.0MHZ | <60°C/140° F |
| ISU-T13 | 3.0-100mm/0.08-4.00" | 5.0MHZ | <350°C/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
- 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 measurement mode setting.
 - Press  or  to select desired measurement mode.

ISU-250C Ultrasonic Thickness Gauge offers two measurement 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 measurement.

◆ 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 unit

The gauge has a memory capacity of 5,200 test results. The memory is composed by alphabet A-Z + location number. There are maximum 200 test results in each alphabet. Users could set an Alphabet freely to store the test result.

- Press  into the menu "5. Memory"-"(1)Memory unit"

- Press  or  to set one alphabet from A-Z as the current file; then - press  to confirm.

- Press  to Esc. Menu and into the measurement.

- Press  key to store each test result with a location number after take away the probe from the workpiece each time.

Notice: Users cannot set location number; it begins as 0000 and plus 1 automatically after users store each test result.

• Memory Read

- Press  (Under the measurement) into the "Memory Read" function,

- Press  and  to set desired Alphabet, Press  and  to select location number.

Then the desired test result

• Data Transfer

- Press  to power on

- Connect main unit with PC by USB cable

- Open an Excel document and click any space

- Make test and press  to upload test result

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 |