KSKSK AR850

Ultrasonic Thickness Gauge AR850 User Manual

Model: AR850 | Brand: KSKSK

1. Introduction

The KSKSK Ultrasonic Thickness Gauge AR850 is a precision instrument designed for measuring the thickness of various hard materials. It utilizes ultrasonic technology to provide accurate and non-destructive measurements, making it suitable for applications involving steel, cast iron, aluminum, copper, zinc, quartz glass, polyethylene, PVC, gray cast iron, and ductile iron. This manual provides detailed instructions for the proper setup, operation, and maintenance of your device to ensure optimal performance and longevity.

2. Safety Information

Please read and understand all safety instructions before operating the device. Failure to do so may result in injury or damage to the instrument.

- Do not expose the device to extreme temperatures, humidity, or direct sunlight.
- Avoid dropping the device or subjecting it to strong impacts.
- Use only the specified battery type (3*AAA Ni-Cd or Ni-Hm) and ensure correct polarity during installation.
- Do not attempt to disassemble or modify the device. Refer all servicing to qualified personnel.
- Keep the device and its accessories out of reach of children.
- Ensure the probe surface is clean and free of debris before each use to ensure accurate readings.

3. Package Contents

Upon opening the package, please verify that all items listed below are present and in good condition:

- Ultrasonic Thickness Gauge AR850 Main Unit
- Ultrasonic Probe
- Coupling Agent (50ml bottle)
- Calibration Certificate
- User Manual (this document)

- Small Metal Calibration Block
- AAA Batteries (Note: Batteries are typically not included and must be purchased separately, despite being shown in some package images for illustrative purposes.)

Figure 3.1: Complete Package Contents
This image displays the full contents of the AR850 package, including the main gauge unit, the ultrasonic probe, a bottle of coupling agent, a calibration certificate, and a small metal block used for calibration. Please note that while batteries are shown, they are typically not included with the product.

4. Product Overview

Familiarize yourself with the components of the Ultrasonic Thickness Gauge AR850.

Figure 4.1: Main Unit and Probe

This image shows the AR850 main unit with its display screen and control buttons, connected to the ultrasonic probe via a cable. The probe is designed to transmit and receive ultrasonic waves for thickness measurement.

Figure 4.2: Gauge Display and Controls
This image provides a closer look at the AR850's display, which shows thickness readings and other indicators, along with the various control buttons for operation, including power, measurement mode, and data functions.

Key Components:

- **Main Unit:** Houses the display, control buttons, and processing circuitry.
- **Ultrasonic Probe:** Transmits and receives ultrasonic signals. Connects to the main unit via a cable.
- **LCD Display:** Shows measurement readings, units, battery status, and other indicators.
- **Control Buttons:**
    - Power Button: Turns the device on/off.
    - VEL/Enter Button: Used to adjust sound velocity settings and confirm selections.
    - Memory Button: Accesses stored data.
    - Up/Down Arrow Buttons: Navigate menus, adjust values, and switch between mm/m/s readings.
    - CAL Button: Initiates calibration.

5. Setup

5.1 Battery Installation

1. Locate the battery compartment on the back of the main unit.
2. Open the battery compartment cover.
3. Insert three (3) AAA Ni-Cd or Ni-Hm batteries, ensuring correct polarity (+/-) as indicated inside the compartment.
4. Close the battery compartment cover securely.

5.2 Probe Connection

1. Connect the two connectors of the ultrasonic probe cable to the corresponding ports on the top of the main unit. Ensure a firm connection.

5.3 Initial Power On and Zero Adjustment

1. Press the Power button to turn on the device. The display will illuminate.
2. The device features an Automatic Zero Adjustment function. Allow a few moments for the device to stabilize upon power-on.
3. For precise measurements, it is recommended to perform a calibration using the included calibration block before first use and periodically thereafter. Refer to the 'Operating Instructions' section for calibration details.

6. Operating Instructions

6.1 Powering On/Off

- To turn on: Press the **Power** button.
- To turn off: Press and hold the **Power** button until the display turns off. The device also features an Auto Power Shut Off function to conserve battery life.

6.2 Preparing for Measurement

1. Ensure the surface of the material to be measured is clean, smooth, and free of rust, paint, or other coatings that could interfere with the ultrasonic signal.
2. Apply a small amount of coupling agent to the surface of the material where the measurement will be taken, or directly onto the probe face. The coupling agent is essential for transmitting the ultrasonic waves between the probe and the material.

6.3 Taking a Measurement

1. Place the probe firmly and flatly onto the prepared surface of the material. Ensure there are no air gaps between the probe and the material.
2. The device will automatically detect the thickness and display the reading on the LCD screen.
3. Move the probe slightly to different spots on the material to take multiple readings and ensure consistency.

6.4 Switching Units (mm/m/s)

- Press the **Up** or **Down** arrow buttons to switch between thickness readings in millimeters (mm) and sound test speed in meters per second (m/s).

6.5 Data Storage Function

- The device has a data storage function capable of storing up to 10 test results.
- To save a reading, press the **Memory** button after a stable reading is displayed.
- To recall stored data, press the **Memory** button repeatedly to cycle through the stored readings.
- Stored data is retained even when the device is powered off.

6.6 Sound Velocity Adjustment

The accuracy of thickness measurement depends on the correct sound velocity setting for the material being measured. The AR850 has a sound velocity range of 1000-9999 m/s.

- To adjust sound velocity, press the **VEL/Enter** button.
- Use the **Up** and **Down** arrow buttons to set the appropriate sound velocity for your material. Refer to standard material sound velocity tables if unsure.
- Press **VEL/Enter** again to confirm the setting.
- The device also includes 12 storage memories for sound test speeds, allowing quick recall of frequently used material velocities.

6.7 Calibration

The AR850 features a high-precision linear compensation circuit (1% H + 0.1) and automatic zero adjustment. For optimal accuracy, periodic calibration is recommended.

1. Ensure the probe is clean and free of coupling agent.
2. Press the **CAL** button to enter calibration mode.
3. Follow the on-screen prompts to calibrate the device using the provided calibration block. Typically, this involves placing the probe on the block and confirming the known thickness.
4. Once calibration is complete, the device will return to measurement mode.

7. Maintenance

7.1 Cleaning

- After each use, wipe the probe face and the main unit with a soft, dry cloth to remove any residual coupling agent or dirt.
- Do not use abrasive cleaners or solvents, as these can damage the device's surface or internal components.

7.2 Storage

- When not in use for extended periods, remove the batteries from the device to prevent leakage and potential damage.
- Store the device and its accessories in a cool, dry place, away from direct sunlight and extreme temperatures.
- Keep the device in its original packaging or a protective case to prevent physical damage.

7.3 Battery Replacement

- The device will display a low battery indication (3V+/-0.2V) when the batteries need to be replaced.
- Replace all three AAA batteries simultaneously with new Ni-Cd or Ni-Hm batteries. Do not mix old and new batteries or different battery types.

8. Troubleshooting

Problem	Possible Cause	Solution
Device does not power on	Dead or incorrectly installed batteries	Replace batteries, ensuring correct polarity.
Inaccurate or unstable readings	• Insufficient coupling agent • Rough or dirty surface • Incorrect sound velocity setting • Probe not flat on surface • Probe or cable damage	• Apply more coupling agent • Clean and smooth the measurement surface • Adjust sound velocity for the material • Ensure firm, flat contact with the surface • Inspect probe/cable for damage; replace if necessary
Low Battery Indication	Batteries are low	Replace all three AAA batteries.
No display or partial display	Device malfunction	Try resetting the device by removing and reinserting batteries. If problem persists, contact customer support.

9. Specifications

Parameter	Value
Measuring Range	1.2-225.0mm (Steel)
Accuracy	+/-(1%+/-0.1)mm
Pipe Measuring Lower Limit	20*3mm (Steel)
Sound Velocity Range	1000-9999m/s
Working Frequency	5MHz
Working Temperature Range	0-45°C

Parameter	Value
Automatic Zero Adjustment	Yes
Data Store Function	Up to 10 test results
Auto Power Shut Off	Yes
Low Battery Indication	3V+/-0.2V
Power Supply	3*AAA Ni-Cd or Ni-Hm Battery (Not included)
Item Weight	3.31 pounds
Package Dimensions	1.18 x 0.79 x 0.39 inches
Material	Plastic

10. Warranty Information

Specific warranty details for the KSKSK Ultrasonic Thickness Gauge AR850 are not provided in this manual. For information regarding warranty coverage, duration, and claims procedures, please refer to the warranty card included with your product, or contact the retailer or manufacturer directly. Please retain your proof of purchase for any warranty-related inquiries.

11. Support

If you encounter any issues or have questions regarding the operation, maintenance, or troubleshooting of your Ultrasonic Thickness Gauge AR850 that are not covered in this manual, please contact the seller or manufacturer for assistance. Provide your product model number (AR850) and a detailed description of the issue when seeking support.