

Sinotech RHA-100ATC

Sinotech RHA-100ATC Refractometer User Manual

Model: RHA-100ATC

INTRODUCTION

The Sinotech RHA-100ATC Refractometer is a precision optical instrument designed for measuring the freezing point of ethylene glycol and propylene glycol-based cooling systems, as well as the specific gravity of battery fluids. Equipped with Automatic Temperature Compensation (ATC), it ensures accurate readings across a temperature range of 10°C to 30°C (50°F to 86°F). This manual provides detailed instructions for the proper setup, operation, maintenance, and troubleshooting of your refractometer.

PRODUCT OVERVIEW

Familiarize yourself with the components of your RHA-100ATC refractometer:

- **Eyepiece:** For viewing the measurement scale.
- **Calibration Screw:** Used to adjust the refractometer to zero.
- **Prism:** Where the sample liquid is applied.
- **Cover Plate:** Covers the prism to spread the sample evenly.
- **Rubber Grip:** Provides a secure and comfortable hold.



Image: Close-up view of the refractometer's eyepiece.



Image: Close-up view of the refractometer's prism, where liquid samples are placed.

SPECIFICATIONS

Feature	Specification
Model Number	RHA-100ATC
Measuring Range (Ethylene Glycol)	-84°F to 32°F (0-70%)
Measuring Range (Propylene Glycol)	-60°F to 32°F (0-63%)
Measuring Range (Battery Fluids)	1.100-1.400 sg
Resolution Factor (Ethylene Glycol)	5°F
Resolution Factor (Propylene Glycol)	5°F

Resolution Factor (Battery Fluids)	0.01 sg
Automatic Temperature Compensation (ATC)	10°C - 30°C (50°F - 86°F)
Material	Alloy Aluminum
Item Weight	1.1 pounds
Package Dimensions	8.66 x 3.15 x 2.76 inches

SETUP

Upon receiving your Sinotech RHA-100ATC Refractometer, ensure all components are present and undamaged.

Unpacking and Inspection:

1. Carefully remove the refractometer and accessories from its packaging.
2. Inspect the device for any visible damage. If damage is found, contact customer support.
3. Confirm the presence of all accessories, typically including a pipette, screwdriver for calibration, and a cleaning cloth.



Image: The refractometer kit, including the device, carrying pouch, pipette, and calibration screwdriver.

OPERATING INSTRUCTIONS

Follow these steps for accurate measurements:

1. Calibration

Calibration should be performed before first use and periodically to ensure accuracy. Use distilled water for calibration.

1. Open the cover plate.
2. Place 2-3 drops of distilled water onto the prism.
3. Close the cover plate gently, ensuring the water spreads evenly without air bubbles.
4. Point the front end of the refractometer towards a light source.

5. Look through the eyepiece and turn the eyepiece to adjust focus until the scale is clear.
6. The boundary between the blue and white fields should align with the "WATER LINE" or "0" mark on the scale. If not, use the provided screwdriver to turn the calibration screw until it aligns.
7. Wipe the prism and cover plate dry with a soft cloth after calibration.



Image: Location of the calibration screw on the refractometer, used for zero adjustment.

2. Sample Measurement

After calibration, you can proceed with measuring your samples.

1. Ensure the prism and cover plate are clean and dry.
2. Using a clean pipette, place 2-3 drops of the sample liquid (e.g., antifreeze, battery fluid) onto the prism.
3. Close the cover plate gently, ensuring the liquid spreads evenly across the prism surface without air bubbles.
4. Point the refractometer towards a light source and look through the eyepiece.
5. Read the value where the boundary line between the blue and white fields crosses the appropriate scale.
6. Record your measurement.
7. Clean the prism and cover plate thoroughly with a soft, damp cloth immediately after each use to prevent residue buildup.



Image: Illustration showing how to apply a liquid sample onto the refractometer's prism using a pipette.

READING THE SCALE

The RHA-100ATC features multiple scales for different measurements:

- **Ethylene Glycol Scale:** Measures freezing point in °F and concentration in percentage (0-70%).
- **Propylene Glycol Scale:** Measures freezing point in °F and concentration in percentage (0-63%).
- **Battery Fluid Scale:** Measures specific gravity (1.100-1.400 sg).

The boundary line between the blue and white fields indicates the measurement. Read the value on the scale corresponding to your sample type.



Image: Detailed view of the RHA-100ATC refractometer's internal scale, showing markings for Ethylene Glycol, Propylene Glycol, and Battery Fluid measurements in degrees Fahrenheit and specific gravity.

MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your refractometer:

- **Cleaning:** Always clean the prism and cover plate immediately after each use with a soft, damp cloth. Do not use abrasive materials or immerse the instrument in water.
- **Storage:** Store the refractometer in its protective case in a dry, clean, and non-corrosive environment. Avoid extreme temperatures.
- **Handling:** Handle the instrument with care. Avoid dropping or subjecting it to strong impacts.
- **Calibration:** Recalibrate regularly, especially if the instrument has been stored for a long time or if there are significant temperature changes in the operating environment.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Blurred scale or unclear boundary line	Eyepiece out of focus; insufficient light; dirty prism/cover plate; air bubbles in sample.	Adjust eyepiece focus; ensure adequate light; clean prism/cover plate; reapply sample carefully.
Inaccurate readings	Refractometer not calibrated; temperature outside ATC range; prism/cover plate dirty; incorrect scale used.	Calibrate with distilled water; ensure ambient temperature is within 10-30°C; clean prism/cover plate; verify correct scale for sample.
Blue/white boundary line does not appear	No sample on prism; insufficient sample; prism/cover plate severely dirty.	Apply 2-3 drops of sample; ensure sample spreads evenly; clean prism/cover plate thoroughly.

SAFETY PRECAUTIONS

- Do not immerse the refractometer in water.
- Avoid direct exposure to strong light sources, as this can damage the optical components.
- Do not touch the prism surface with hard or sharp objects.
- Keep out of reach of children.
- Always wear appropriate personal protective equipment (PPE) when handling chemicals or fluids that may be

hazardous.

WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the documentation included with your purchase or contact Sinotech customer service. Keep your purchase receipt as proof of purchase.

Manufacturer: SINOTECH

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

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After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question