

Operation Manual

For Hand Held Antifreeze Refractometer

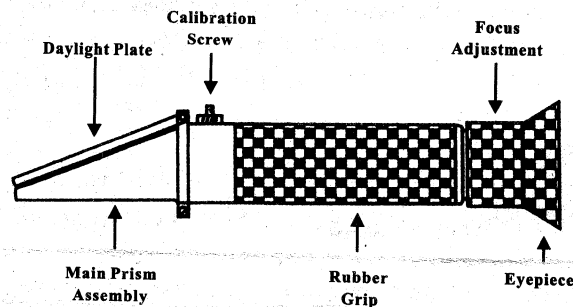
The RHA series are designed to test the concentration of the battery fluids, antifreeze liquid and cleaning fluids. With the indication of the percentage you may know at which temperature the fluid will be frozen for both propylene glycol and ethylene glycol. It can also be used for checking the strength of electrolyte spution batteries.

Remarks: in the following firms, E, P, B and C respectively refer to ethylene Glycol, Propylene Glycol, Battery and Cleaning Fluids.

SERIES:

Style	Model	Range	Min. Div	Accuracy	Remarks
Salinity	RHA-100	E: -84°F - 32°F P: -60°F - 32°F B: 1.100 - 1.400sg	5°F 5°F 0.01 sg	±5°F ±5°F ±0.01 sg	Without ATC
	RHA-100ATC	E: -84°F - 32°F P: -60°F - 32°F B: 1.100 - 1.400sg	5°F 5°F 0.01 sg	±5°F ±5°F ±0.01 sg	ATC
	RHA-200	E: -60°C - 0°C P: -50°C - 0°C B: 1.100 - 1.400sg	5°C 5°C 0.01 sg	±5°C ±5°C ±0.01 Ssg	Without ATC
	RHA-200ATC	E: -60°C - 0°C P: -50°C - 0°C B: 1.100 - 1.400sg	5°C 5°C 0.01 sg	±5°C ±5°C ±0.01 sg	ATC
	RHA-300F	E: -60°F - 32°F P: -50°F - 32°F B: 1.15 - 1.30sg	10°F 10°F 0.01 sg	±10°F ±10°F ±0.01 sg	Without ATC
	RHA-403C	E: -50°C - 0°C P: -50°C - 0°C C: -40°C - 0°C B: 1.15 - 1.30sg	5°C 5°C 5°C 0.01 sg	±5°C ±5°C ±5°C ±0.01 sg	Without ATC
Alcohol	RHA-501	E: -90°F - 32°F E: -70°C - 0°C P: -70°F - 32°F P: -60°C - 0°C B: 1.100 - 1.400sg	10°F 5°C 10°F 5°C 0.01 sg	±10°F ±5°C ±10°F ±5°C ±0.01 sg	Without ATC
	RHA-503C	E: -50°C - 0°C P: -50°C - 0°C C: -40°C - 0°C B: 1.100 - 1.400sg	5°C 5°C 5°C 0.01 sg	±5°C ±5°C ±5°C ±0.01 sg	Without ATC

Parts Diagram:



Operation Steps:

Step 1.

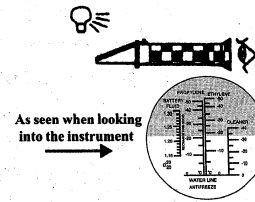
Open daylight plate, and place 2-3 drops of distilled water on the main prism.

Close the daylight plate so the water spreads across the entire surface of the prism without air bubbles or dry spots. Allow the sample to temperature adjust on the prism for approximately 30 seconds before going to step #2. (This allows the sample to adjust to the ambient temperature of the refractometer)



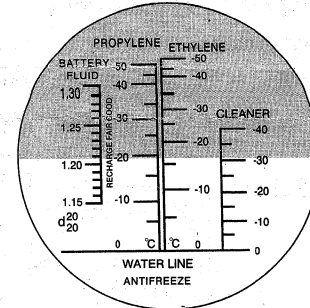
Step2.

Hold daylight plate in the direction of a light source and look into the eyepiece. You will see a circular field with graduations down the center (you may have to focus the eyepiece to clearly see the graduations). The upper portion of the field should be blue, while the lower portion should be white. (The pictures shown here and shown in step 3. & step 4. are only as reference, the right specific scale is listed the product.)

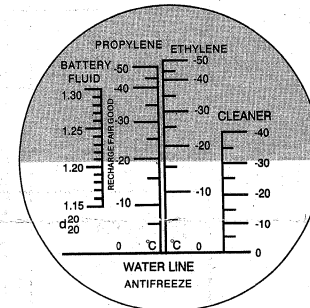


Step3.

Look into the eyepiece and turn the Calibration Serew until the boundary between the upper blue field and the lower white field meet exactly on the zero scale, such as shown in the image. That is the end of the calibration process. Make sure the ambient room temperature is correct for the solution you are using (20°C/68°F). When working temperature of the room or environment (not the sample) changes by more than 5°F, we recommend recalibrating to maintain accuracy. If the instrument is equipped with Auto matic Temperature Compensation system, the ambient working temperature of the room must be 20°C (60°F) whenever the instrument is recalibrated. Once calibrated, shifts in ambient temperature within the acceptable range (10°C - 30°C) should not effect accuracy.



Calibrate to "0"



Reading of Sample

Step4.

Now place a few drops of the sample to be tested onto the main prism, close the daylight plate and check reading. Take the reading where the boundary line of blue and white cross the graduated scale. The scale will provide a direct reading of the concentration.

Warning-Maintenance

- 1 Accurate measurement depends on careful calibration. The prism and sample must be at the same temperature for accurate results.
- 2 Do not expose the instrument to damp working conditions, and do not immerse the instrument in water. If the instrument becomes foggy water has entered the body. Call a qualified service technician or contact your dealer.
- 3 Do not measure abrasive or corrosive chemicals with this instrument. They can damage the prism's coating.
- 4 Clean the instrument between each measurement using a soft, damp cloth, Failure to clean the prism on a regular basis will lead to inaccurate results and damage to the prism's coating.
- 5 This is an optical instrument. It requires careful handling and storage. Failure to do so can result in damage to the optical components and its basic structure. With care, this instrument will Provide years of reliable service.