User's Guide

EXTECH INSTRUMENTS

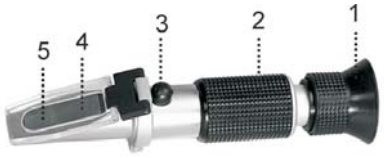
Battery/Coolant Refractometer with ATC
Model RF40-C

Introduction

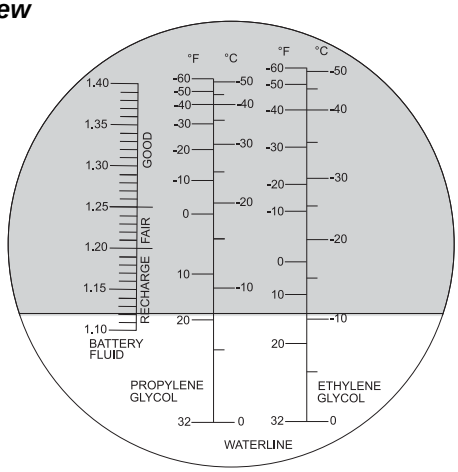
Congratulations on the purchase of your RF40-C Battery/Coolant Refractometer with automatic temperature compensation. This precision optical instrument should be handled gently; avoid touching the optical surface. Careful use of this instrument will provide years of reliable service.

Description

1. Eyepiece
2. Mirror tube
3. Adjustment Screw
4. Cover plate
5. Prism



Field of View



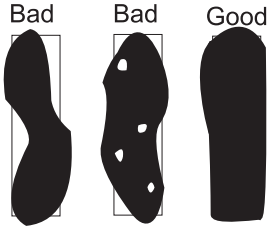
Operation

The instrument measures the refractive index of the sample.

1. Zero Adjustment

Place one or two drops of distilled water on the prism. Close the cover plate and rotate the adjusting screw so that the light/dark boundary lines up with the “waterline”. Once the zero adjustment has been completed, clean the prism with soft cloth

2. Sample Preparation and Reading



To take a sample reading, simply place a few drops of a sample liquid on the measurement prism at the end of the instrument. Lower the cover plate onto the sample and prism. Open the prism cover and place 2 or 3 drops on the prism. Close the cover so the liquid spreads across the entire surface of the prism without air bubbles or dry spots.
Allow the sample to remain on the prism for approximately 30 seconds.

While holding the instrument under a light source, look through the eyepiece. The freezing point of the liquid or the state of the battery liquid is determined by the intersection of the boundary of the light and dark fields (known as the shadowline) on the printed scale. If the scale appears out of focus, the eyepiece may be adjusted by rotating the knurled portion. The instrument also features an eye guard to prevent stray light from entering the eyepiece and causing reflections.

It may be necessary to adjust the position of the light source to maximize the contrast of the shadowline. Under normal conditions, optimal contrast is obtained by holding the instrument underneath and perpendicular to a light source.

Once a reading has been taken, wipe dry with a clean cloth (do not wash or rinse) and place the instrument in the supplied plastic case. Store the instrument in a safe, dry environment.

Temperature is one of the single most important factors influencing accurate refractometer readings and is one of the largest sources of error in measurement. Temperature compensation relieves the user of the responsibility to measure temperature and apply a correction factor when taking readings. This refractometer makes this correction automatically. When ambient temperature varies from 20°C (68°F), readings are automatically adjusted to compensate for temperature variance between 10°C to 30°C (50°F to 86°F).

Specifications

Range	-51 to 0°C (-60 to 32°F) for propylene and ethylene glycol freeze point 1.10 to 1.40 specific gravity of battery acid
Resolution	1°C/2°F glycol freeze point 0.01 specific gravity of battery acid
Dimensions	6.5x1.5x1.5" (165x38x38mm)
Weight	7.0 oz. (200g)

Version 1.0 March 2006