



## ATD-3705 ANTIFREEZE REFRACTOMETER MANUAL



### Features:

- High-quality refractometer offers a fast, easy way to test the freezing point of coolant/anti-freeze
- Works with Ethylene or Propylene Glycol anti-freeze
- Not for use with OAT coolants or DEF
- Also measures battery acid gravity to determine battery life
- Automatic temperature compensation
- Large, easy-to-read graphics and high-contrast lens
- Adjustable viewfinder; rugged, steel body construction
- Includes storage case, fluid dropper, cleaning cloth and mini screwdriver

### Specifications:

Range:

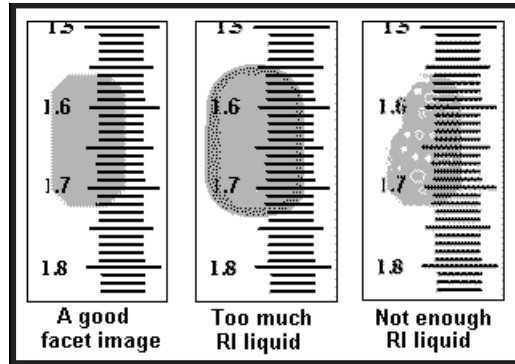
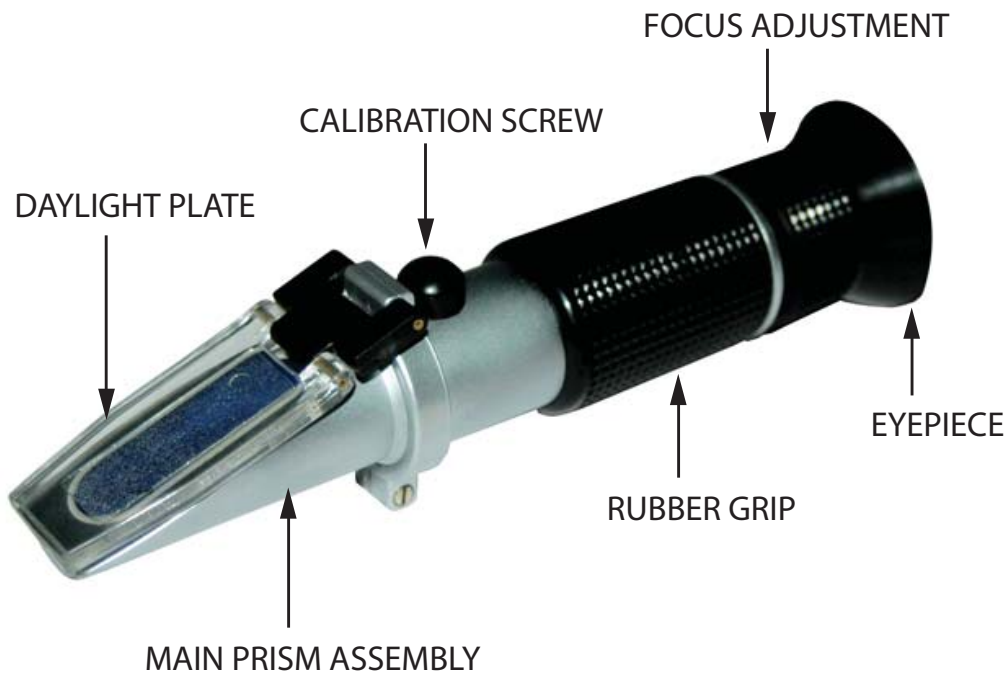
Ethylene Glycol: -84°F to 32°F  
Propylene Glycol: -60°F to 32°F  
Battery: 1.100-1.400 Specific Gravity

Minimum Division:

Ethylene Glycol: 5°F  
Propylene Glycol: 5°F  
Battery: 0.01 Specific Gravity

Accuracy:

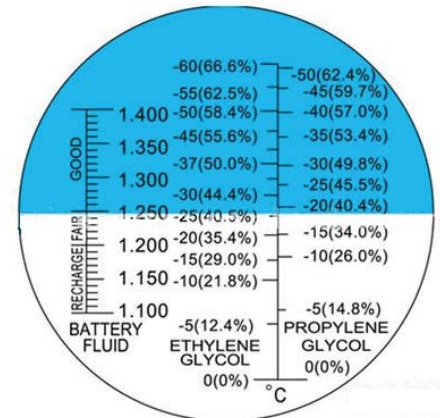
Ethylene Glycol: ±5°F  
Propylene Glycol: ±5°F  
Battery: ±0.01 Specific Gravity



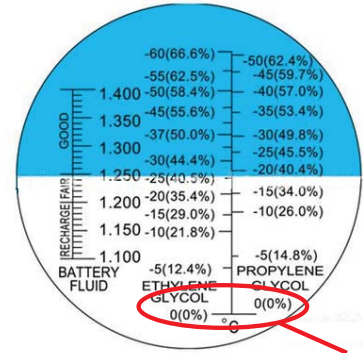
## **OPERATION:**

**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)

**2.** 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 on the product.)



3. Look into the eyepiece and turn the calibration screw until the boundary between the upper blue field and the lower white field meet exactly on the zero scale. 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 the environment (not the sample) changes by more than 5· , we recommend recalibrating to maintain accuracy. If the instrument is equipped with automatic 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· F) should not affect accuracy.



The Zero Scale

4. Now place a few drops of the sample to be tested onto the main prism, close the daylight plate and check the 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.

**Warnings/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.

**Specifications:**

**Range:**

Ethylene Glycol: -84° F-32° F  
 Propylene Glycol: -60° F-32° F  
 Battery: 1.100-1.400sg

**Min.Div.:**

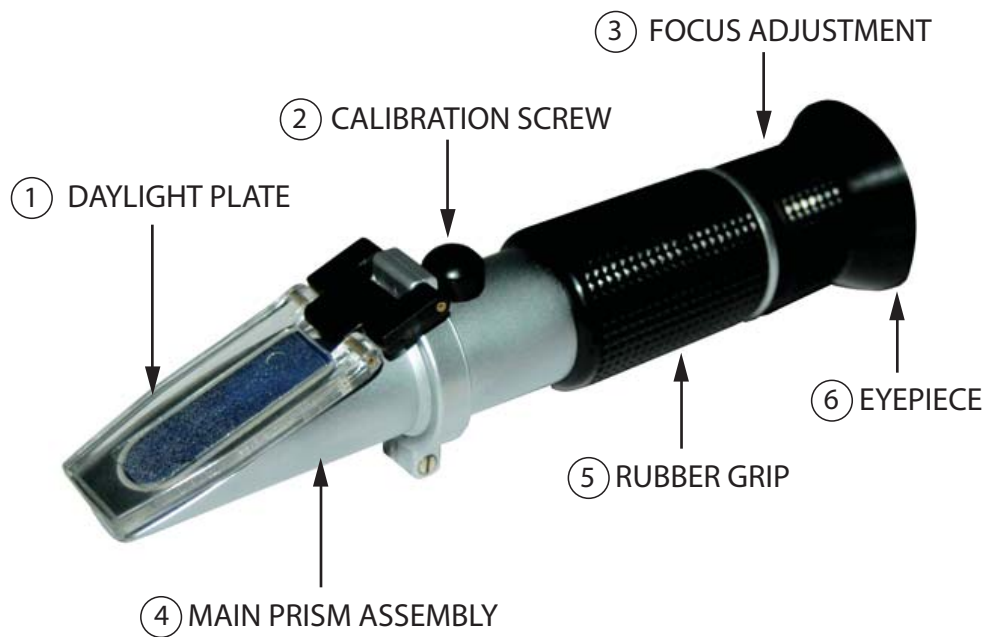
Ethylene Glycol: 5° F  
 Propylene Glycol:5° F  
 Battery: 0.01sg

**Accuracy:**

Ethylene Glycol: ± 5° F  
 Propylene Glycol: ± 5° F  
 Battery: ± 0.01sg

# ATD<sup>®</sup>

## ATD-3705



ITEM#	ORDERING PART#	PART DESCRIPTION
1	PRT3705-01	DAYLIGHT PLATE
2	PRT3705-02	CALIBRATION SCREW
3	PRT3705-03	FOCUS ADJUSTMENT
4	PRT3705-04	MAIN PRISM ASSY
5	PRT3705-05	RUBBER GRIP
6	PRT3705-06	EYEPIECE