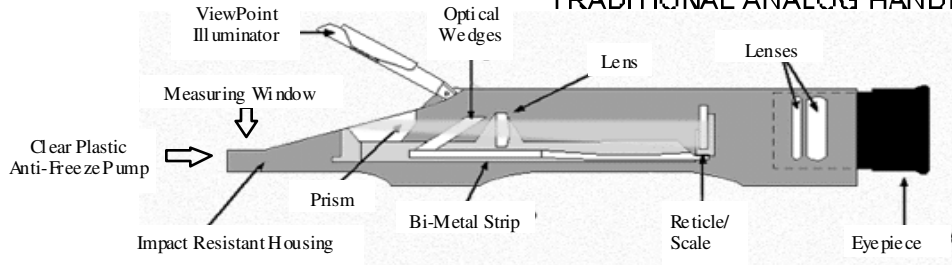


INSTRUCTIONS FOR USE

TRADITIONAL ANALOG HANDHELD



1.0 Introduction

The Glycol Tester (refractometer) is a fast and easy-to-use method for testing the freeze point of glycol based solutions. It provides automatic-temperature-compensation for immediate, accurate direct readings of propylene glycol or ethylene glycol fluids.

The Glycol tester measures freeze point protection in degrees Fahrenheit.

NOTE: Accuracy of the refractometer readings may be slightly affected by the specific coolant formulation of individual manufacturers.

Using a refractometer to test freeze point, following the American Society for Testing & Materials (ASTM) Standard Practice D3321, provides results that are precise to $\pm 1.0^{\circ}\text{F}$ ($\pm 0.55^{\circ}\text{C}$) reading a 50% vol. aqueous solution of ethylene glycol.

2.0 Cleaning the Instrument

The Instrument should be thoroughly cleaned after each use. Any residue left on the measuring surface could result in an inaccurate reading or damage to the instrument.

To clean, swing back the ViewPoint Illuminator, located at the slanted end of the instrument, to expose the measuring surface. Wipe clean both the surface and the bottom of the ViewPoint Illuminator. Dry them with a tissue or a clean soft cloth. Close the ViewPoint Illuminator.

3.0 Sampling

CAUTION: Read this section and follow all the instructions.

We recommend that safety glasses are worn.

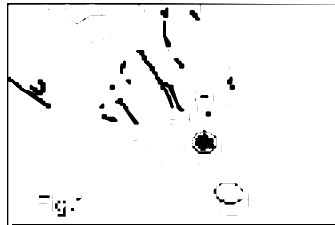
You should also be sure that the eye-piece of the Instrument is completely free of any liquid before looking through it.

To Sample Anti-Freeze Solution

The clear plastic dropper, located on the side of the Instrument, should be used to draw the test sample. Be sure the dropper is free of any previous sample before starting the testing procedure.

Dip the end of the plastic dropper into the coolant without removing it from the tester. Be sure to insert the tube slightly below the fluid level.

Press and release the bulb to draw a sample of coolant. Bend the plastic tube around the Instrument so that the tip can be inserted in the ViewPoint Illuminator opening. Eject a few drops of the coolant onto the measuring surface by pressing the bulb (Figure 1). Now take the reading.



4.0 Taking the Reading

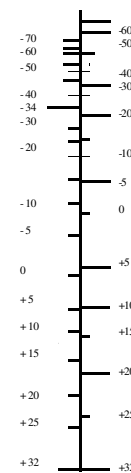
Your Instrument is equipped with an eye guard that can be used in two positions. When wearing eyeglasses, the eye guard should be folded back; when no eyewear is worn the eye guard should be extended. Proper positioning of the eye guard will help eliminate stray light and improve image quality.

NOTE: The temperature scale is reversed from a standard thermometer scale. Readings below 00 are on the upper half of the scale. The scale is not visible until a sample is placed on the surface. If the concentration of the solution tested is greater than the limits of the scale, the shadow will not be visible.

To take a reading, point the Instrument toward any light source, or press the top of the ViewPoint Illuminator, and look into the eye-piece. The coolant freeze point is taken where the dark and light portions of the scale meet. Take the coolant reading on the right-hand scale. (Fig.2)

To obtain the best contrast between the light and dark portions of the scale, it may be necessary to use the ViewPoint Illuminator or tilt the instrument toward an external light source. If the edge between the light and dark shadow is not sharp, the measuring surface was not sufficiently clean and dry or there was not enough fluid on the measuring surface.

Clean the instrument according to the instructions in Section 2.0, and perform a new test.



ETHYLENE
GLYCOL

PROPYLENE
GLYCOL

Fig.2