

Digital Refractometer for Ethylene Glycol Analysis

HI96831 Digital Refractometer

for Ethylene Glycol Analysis

- 0 - 100% Volume range with $\pm 0.2\%$ accuracy
- 0 to -50°C freezing point range with $\pm 0.5^{\circ}\text{C}$ accuracy
- Dual-level LCD
 - The dual-level LCD displays measurement and temperature readings simultaneously
- ATC
 - Automatic Temperature Compensation
- Easy measurement
 - Place a few drops of the sample in the well and press the READ key
- BEPS
 - Alerts the user of low battery power that could adversely affect readings
- IP65 water protection
 - Built to perform under harsh laboratory and field conditions.
- Quick, accurate results
 - Readings are displayed in approximately 1.5 seconds
- Single-point calibration
 - Calibrate with distilled or deionized water
- Small sample size
 - Sample size can be as small as 2 metric drops
- Automatic shut-off
 - After three minutes of non-use
- Stainless steel sample well
 - Resists corrosion from salt water
- ABS thermoplastic casing



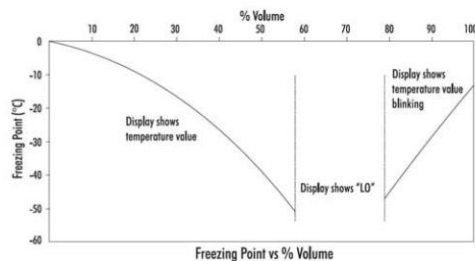
Ideal for Ethylene Glycol Analysis

The HI96831 Ethylene Glycol Digital Refractometer is a rugged, portable, water-resistant device that utilizes the measurement of the refractive index to determine the percent volume and freezing point of ethylene glycol based solutions.

This digital refractometer eliminates the uncertainty associated with mechanical refractometers. HI96831 samples are measured after a simple user calibration with distilled or deionized water. Within seconds, the refractive index and temperature are measured and converted into one of two measurement units; % volume or freezing point. This meter uses internationally recognized references for unit conversion and temperature compensation for glycol solutions (e.g. CRC Handbook of Chemistry and Physics, 87th Edition).

Measurement Units

Freezing point is displayed as a temperature from 0.0 to -50.0°C corresponding to 0 - 58% by volume. The display blinks the freezing point when the concentration of ethylene glycol is greater than 78% concentration by volume. When the display shows "LO", the freezing point is at a minimum (below -50°C).



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Easy to Operate

Start-up Screens

When the HI96831 is turned on, all of the LCD segments will be displayed followed by the percentage of battery life remaining.

Calibration

Perform a quick and easy calibration after start-up:

- Using a plastic pipette, completely cover the prism in the sample well with distilled or deionized water.
- Press the ZERO key.

Unit Selection

Just press the RANGE key to cycle through the HI96831's units of measurement. % Volume (% V/V), Freezing Point (FP).

Measurement

Achieve fast, professional results:

- Using a plastic pipette, drip sample onto the prism surface until the well is full.
- Press the READ key and the results are displayed in the selected units.

Making a Standard Sodium Chloride Solution

To make an Ethylene Glycol Solution, follow the procedure below:

- Place container (such as a glass vial or dropper bottle that has a cover) on an analytical balance.
- Tare the balance.
- Volumetrically add X mL of high purity ethylene glycol (CAS #: 107-21-1; MW 62.068) to a 100 mL Grade A volumetric flask
- Use distilled or deionized water to bring the flask close to the total volume, mix, allow the solution to return to room temperature.

- Once the solution has returned to room temperature use distilled or deionized water to bring the total volume to 100 mL. Mix solution well before use.

Example Standard Solution:

	Ethylene Glycol	Total Volume	Expected Freezing Point Value
10% V/V	10.00 mL	100.000	-3.8°C (25.2°F)
40% V/V	40.00 mL	100.000	-26.3°C (-15.4°F)

Specifications	HI96831 Ethylene Glycol	
% Volume (% v/v)	Range	0 to 100%
	Resolution	0.1 %
	Accuracy (@25°C/77°F)	±0.2 %
Freezing Point (FP)	Range	0 to -50°C (32 to -58°F)
	Resolution	0.1°C (0.1°F)
	Accuracy (@25°C/77°F)	±0.5°C (±1.0°F)
Temperature	Range	0 to 80°C (32 to 176°F)
	Resolution	0.1°C (0.1°F)
	Accuracy (@25°C/77°F)	±0.3°C (±0.5°F)
Additional Specifications	Temperature Compensation	automatic between 0 and 40°C (32 to 104°F)
	Measurement Time	approximately 1.5 seconds
	Minimum Sample Volume	100 µL (to cover prism totally)
	Light Source	yellow LED
	Sample Cell	stainless steel ring and flint glass prism
	Auto-off	after three minutes of non-use
	Enclosure Rating	IP65
	Battery Type / Battery Life	9V / approximately 5000 readings
Dimensions / Weight	192 x 102 x 67 mm (7.6 x 4.01 x 2.6") / 420 g (14.8 oz.)	
Ordering Information	HI96831 and HI96832 are supplied with battery and instruction manual.	



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