

HI84502

# Total Acidity Mini Titrator and pH Meter

for Wine Analysis

- **Piston driven pump with dynamic dosing**
  - For highly accurate, repeatable results
- **CAL Check™**
  - Alerts users to potential problems during calibration such as contaminated buffers or dirty/broken pH electrode
- **Log-on-demand**
  - Log data up to 400 samples (200 for titration; 200 for pH/mV)
- **Graphic mode/exportable data**
  - Displays in-depth data on titration, which can then be stored and exported to either a USB drive or PC using the USB connection
- **Automatic stirrer speed control**
  - Maintains stirrer speed at 600 RPM regardless of viscosity of solution
- **GLP features**
  - Date, time, offset, slope and buffers used
- **Easy-to-use interface**
  - User intuitive design with large keys and easy to navigate screens
- **Help features**
  - Dedicated HELP key for content sensitive help
- **pH/mV meter**
  - Doubles as a benchtop pH meter



## An Easy-to-Use, All-in-one Solution

The HI84502 is an easy to use, fast and affordable automatic mini titrator designed for testing total acidity levels in wine. It includes a pre-programmed analysis method and uses a powerful algorithm in order to determine when the titration reaction has reached completion. The results are displayed in g/L as tartaric acid. The HI84502 incorporates a precision piston driven dosing pump which allows for a highly accurate determination of the amount of titrant used. Pump calibrations performed with the provided Hanna standards assure the accuracy of measurements.

This mini titrator is also designed to be used as a benchtop pH/mV meter. As a pH meter, it has many features of a professional grade benchtop including automatic calibration up to three points with four available buffers, a 0.01 pH resolution, accuracy of  $\pm 0.01$  pH, automatic temperature compensation and comprehensive GLP data.

The GLP data includes date, time, offset, slope, and buffers used for calibration.

Accuracy is always ensured with Hanna's unique CAL Check feature, which analyzes the response of the electrode during the calibration process. Based on electrode response in the buffer, indicators are displayed on screen to alert the user of potential problems during calibration. These indicators include Buffer Contaminated, Electrode Dirty/Broken, and overall probe condition. The CAL Check function not only ensures an accurate pH reading when the HI84502 is used as a pH meter but also an accurate titration since the endpoint is determined by a set pH value.

## The Significance of Titratable Total Acidity

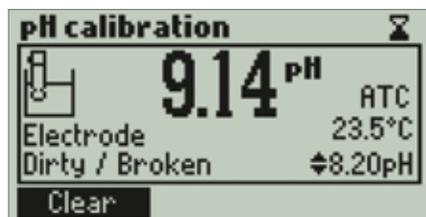
Acids occur naturally during the growing of grapes and as part of the fermentation process. Wines show lower levels of acid when there is a hot growing season or when the grapes come from warmer regions. In the proper proportion, acids are a desirable trait and give the wine character. The three predominant acids in wine are tartaric, malic and citric. Tartaric acid is the principal acid in grapes and is a component that promotes a crisp flavor and graceful aging in wine. A

moderate amount of a wine's acid comes from malic acid, which contributes to fruitiness. A small amount of titratable acidity comes from citric acid. Wine also contains trace amounts of other acids; the least desirable acid in wine is acetic acid, which, when present in more than a nominal amount, gives wine a sour or vinegary aspect.

Total acidity, also called titratable acidity, is the sum of the fixed and volatile acids. In the United States the total acidity is usually expressed in terms of tartaric acid, even though the other acids are measured.

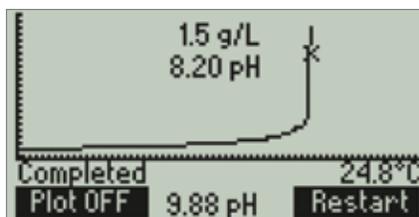
Total acidity directly affects the color and flavor of wine and, depending on the style of the wine, is sought in a perfect balance with the sweet and bitter sensations of other components. Too much acidity makes wine tart and sharp; too little makes wines flat, flabby and uninteresting. Proper acidity in wine is what makes it refreshing and an ideal accompaniment to food. The proper acid level of a wine varies, with sweeter wines generally requiring somewhat higher levels to retain the proper balance.

## On-screen Features



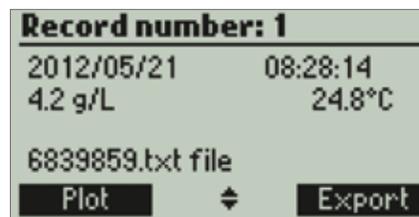
### CAL Check™

A Hanna exclusive process for checking the condition of electrodes which helps keep measurements accurate.



### Titration Curve Displayed On Screen

The HI84502 offers real time graphing of the titration curve on the LCD.



### Log and Recall Data

Log up to 400 samples (200 for titration results; 200 for mV/pH) and recall or export data to a USB stick or PC.

## Specifications

### HI84502

Titrator	Range	Low Range: 0.1 to 5.0 g/L (ppt) of tartaric acid High Range: 4.0 to 25.0 g/L (ppt) of tartaric acid
	Resolution	0.1 g/L (ppt)
	Accuracy (@25°C/77°F)	±0.1 g/L or 3 % of reading, whichever is greater
	Method	acid-base titration
	Sample Volume	Low Range: 10 mL High Range: 2 mL
	Principle	endpoint titration: 7.00 pH or 8.20 pH
	Pump speed	10 mL/min
pH	Stirring Speed	600 rpm
	Range	-2.0 to 16.0 pH; -2.00 to 16.00 pH
	Resolution	0.1 pH / 0.01 pH
	Accuracy (@25°C/77°F)	±0.01 pH
	Calibration	one, two or three-point calibration, four available buffers (4.01, 7.01, 8.20, 10.01)
mV Meter	Temperature Compensation	manual or automatic
	Range	-2000.0 to 2000.0 mV
	Resolution	0.1 mV
Temperature	Accuracy (@25°C/77°F)	±1.0 mV
	Range	-20.0 to 120.0°C; -4.0 to 248.0°F; 253.2 to 393.2 K
	Resolution	0.1°C; 0.1°F; 0.1 K
Additional Specifications	Accuracy (@25°C/77°F)	±0.4°C; ±0.8°F; ±0.4 K
	Logging Data	up to 400 samples ( 200 pH/mV, 200 titration)
	pH Electrode	HI1048B glass body pH electrode with BNC connector and 1 m (3.3') cable (included)
	Temperature Probe	HI7662-T stainless steel temperature probe with 1 m (3.3') cable (included)
	Connectivity	(1) Type-B USB for PC interface, (1) Type-A USB for storage
	Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
	Power Supply	12 VDC adapter (included)
	Dimensions	235 x 200 x 150 mm (9.2 x 7.9 x 5.9")
Ordering Information	Weight	1.9 kg (67.0 oz)
	<b>HI84502-01</b> (115V) and <b>HI84502-02</b> (230V) are supplied with HI1048B pH electrode, HI7662-T temperature probe, HI7082 electrode fill Solution (30 mL), HI84502-70 reagent kit (consisting of: 1 bottle HI84502-50 (230 mL) titration solution and HI84502-55 (120 mL) pump calibration standard (1 bottle)), (2) 100 mL beakers, dosing pump valve, 2000 µL automatic pipette (1) with plastic tips (2), 5 mL syringe, 1 mL plastic pipette, tube set (aspiration tube with titrant bottle cap and dispensing tube with tip), stir bar, electrode cleaning solution sachets for wine deposits (2), electrode cleaning solution sachets for wine stains (2), power adapter, instruction manual and quality certificate.	