HI 84502

Titratable Total Acidity Mini Titrator for Wine Analysis
HI 84502 Mini Titrator for Wine Applications

- **Piston Driven Pump with Dynamic Dosing**
  This piston driven dosing pump incorporates dynamic dosing to provide highly accurate, repeatable results.

- **CAL-CHECK®**
  CAL-CHECK® alerts users to potential problems during calibration such as contaminated buffers or dirty/broken electrodes.

- **pH/mV Meter**
  In addition to automatic titration, the HI 84502 can also be used as a pH/mV meter.

- **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 approximately 600 rpm regardless of viscosity of solution.

- **GLP Feature**
  The HI 84502 includes a GLP feature that allows users to view calibration data for the pH electrode and dosing pump.

- **Easy to Use Interface**
  User intuitive design with large keys and easy to navigate screens.

- **pH Electrode**
  The HI 84502 is supplied with the HI 1048B pH electrode. This versatile electrode is designed to be used in all types of wine related applications.
All-in-One
Wine Titrator, pH Meter, Electrode and Magnetic Stirrer in one package.
Piston Driven Pump with Dynamic Dosing
The HI 84502 incorporates dynamic dosing to provide precision titrant delivery. Dynamic dosing adjusts the amount of titrant dosed as the end point is approached for increased accuracy in end point detection.

Piston Burette
Piston burettes provide an exceptionally reliable titrant delivery. This highly accurate dosing method is attained by combining a pulse controlled step motor with a 5 mL polypropylene syringe. The rigid and stable body of our syringe allows for less frequent pump calibration. Users no longer have to account for the changing elasticity of tubing associated with peristaltic pumps.

More About Dynamic Dosing
With the integration of our piston burette, our titrator can adjust the volume and frequency of titrant dosed based on relative mV changes in the testing solution. This titrant delivery system is known as dynamic dosing, where titrant is delivered in larger doses at the start of the titration and smaller doses near the end point. These differences in dosing volume and frequency result in a faster titration without sacrificing accuracy. With larger doses in the beginning of the titration, the speed of the titration is increased, where smaller doses near the end point allow for more time for the titrant and analyte to react. Smaller doses also prevent the over titration of a sample and a more accurate determination of the titrant volume used.

Application Specific pH Electrode
The HI 84502 is supplied with the HI 1048B pH electrode featuring CPS™ technology. This technology is used to prevent clogging of the reference junction. Conventional electrodes may clog quickly in biological samples such as wine. By design, the HI 1048B pH electrode utilizes a ground glass/PTFE sleeve junction which controls a steady, predictable flow of electrolyte solution, keeping the junction open. The hydrophobic properties of PTFE repels wetness and coatings.
**Features**

**Tutorial and HELP Screens**
The accessing of the tutorial menu provides helpful information during calibration and titration.

**Adjustable Backlit LCD**
The HI 84502 offers a backlit LCD with adjustable brightness levels. This ensures that the LCD is always easy to read.

**Setup Screens**
The LCD features an easy to use setup screen that allows the user to change measuring range, time, date, language and more.

**GLP**
The GLP feature records electrode and pump calibration data to help keep measurements accurate and reliable.

**CAL-CHECK®**
CAL-CHECK is a Hanna exclusive process for checking the condition of electrodes which helps keep measurements accurate.

**Log and Recall Data**
The HI 84502 can log up to 400 samples (200 for titration results; 200 for mV/pH) and recall or export data to a USB stick or PC.

**Procedure Warnings**
Users are warned if there is an error in procedures such as the use of a wrong buffer.

**Titration Curve Displayed On Screen**
The HI 84502 offers real time graphing of the titration curve on the LCD.

**Display**
1) Current time and instrument mode information (pH meter or titrator)
2) Procedural indicators
3) Stirrer speed
4) Instrument status
5) Virtual option keys
6) Stirrer and icon status

During the instrument’s operation, a set of information are displayed on the LCD. Displayed icons:

7) Main reading information
8) pH temperature compensation mode (manual or automatic)
9) Temperature reading

**Rear USB Outputs**
For PC connection and to export data to a USB drive.
Specifications

**Titrator**

- **Range**:
  - Low range: 0.1 to 5.0 g/L of tartaric acid
  - High range: 4.0 to 25.0 g/L of tartaric acid
- **Resolution**: 0.1 g/L
- **Accuracy (@25°C/77°F)**: 3% of reading or ±0.1 g/L, whichever is greater
- **Method**: Acid-base titration
- **Principle**: End point titration: 8.20 pH
- **Pump speed**: 10 mL/min
- **Stirring Speed**: 600 rpm
- **Logging Data**: Up to 200 samples

**pH Meter**

- **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**: 1, 2, or 3 calibration points with 4 available buffers (4.01, 7.01, 8.20, 10.01)
- **Temperature Compensation**: Manual or automatic from -20 to 120°C (-4 to 248°F)
- **Logging Data**: Up to 200 samples (pH or mV)

**mV Meter**

- **Range**: -2000.0 to 2000.0 mV
- **Resolution**: 0.1 mV
- **Accuracy**: ±1.0 mV
- **Logged Data**: Up to 200 samples (pH or mV)

**Temperature**

- **Range**: -20.0 to 120.0°C (-4.0 to 248.0°F)
- **Resolution**: 0.1°C
- **Accuracy**: ±0.4°C without probe error

**Additional Specifications**

- **pH Electrode**: HI 1048B glass body, refillable with BNC connector and 1 m (3.3') cable (included)
- **Temperature Probe**: HI 7662-T stainless steel temperature probe with 1 m (3.3') cable (included)
- **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”)
- **Weight**: 1.9 kg (67.0 oz.)

Ordering Information

HI 84502-01 (115V) and HI 84502-02 (230V) are supplied with:

**Reagents**

- HI 84502-50 Titrant solution (230 mL)
- HI 84502-55 Calibration standard solution (120 mL)

**pH Calibration Solutions**

- HI 7004M Buffer solution pH 4.01 (230 mL)
- HI 7007M Buffer solution pH 7.01 (230 mL)
- HI 70082M Buffer solution pH 8.20 (230 mL)
- HI 7010M Buffer solution pH 10.01 (230 mL)

**Electrode Fill and Storage Solutions**

- HI 7082 Electrode fill solution (4 x 30 mL)
- HI 70300L Electrode storage solution (500 mL)

**Electrode Cleaning Solution**

- HI 70635L Cleaning solution for wine deposits (500 mL)
- HI 70636L Cleaning solution for wine stains (500 mL)

**Electrodes**

- HI 1048B pH electrode
- HI 7662-T Temperature probe

**Other Accessories**

- HI 70500 Tube set with cap for titrant bottle, tip and valve
- HI 731352 Tips for 2000 μL automatic pipette (4 pcs.)
- HI 731342 Automatic pipette 2000 μL
- HI 71005/B 115 Vac to 12 Vdc, 800 mA
- HI 71006/B 230 Vac to 12 Vdc, 800 mA
- HI 731319 Stir bar, 25 x 7 mm (10 pcs.)
- HI 740036P 100 mL beaker (10 pcs.)
- HI 740236 5 mL syringe for mini titrator
- HI 920013 PC connection cable

**Accessories**

- HI 84502-70 Reagent kit for titratable acidity in wine products
- HI 1048B pH electrode
- HI 7662-T Temperature probe
- HI 7082 Electrode fill solution (30 mL)
- HI 731352 2000 μL automatic pipettes with two plastic tips
- HI 740036P Two 100 mL beakers
- HI 70500 Tube set (aspiration tube with titrant bottle cap and dispensing tube with tip)
- HI 740236 Dosing pump valve
- HI 74023H Syringe (6 mL)
- HI 731319 Stir bar
- HI 70635L Cleaning solution for wine deposits and wine stains
- HI 70636L Cleaning solution for wine stains
- HI 70500 Power adapter

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