

HI 84431 • HI 84442

## Total Titratable Alkalinity Titrators

- User-friendly interface
- Dedicated HELP key
- Simple to operate
- Log on demand up to 100 samples (50 for pH; 50 for titration)
- GLP features
- One, two or three point calibration
- pH temperature compensation



Titrator, pH meter, pH electrode and magnetic stirrer in one compact unit!

### Total Titratable Very Low Alkalinity

The HI 84442 is a dedicated mini titrator and pH meter designed for very low levels of alkalinity displayed as 5.0 to 20.00 mg/L as  $\text{CaCO}_3$  or 0.1 to 0.4 meq/L as  $\text{CaCO}_3$ . It utilizes an electrometric titration with a pH electrode to determine the total titratable alkalinity in water. As titrant is slowly added to the sample solution the pH and temperature are carefully monitored. The software analyzes the resulting pH curve and determines the volume of titrant required to reach the endpoint of 4.5 pH. (known as bromcresol green alkalinity).

The dispensed titrant volume is used to automatically calculate the water alkalinity, which can be displayed in mg/L  $\text{CaCO}_3$  or meq/L. Titrations are conducted using the reagent HI 84442-50.

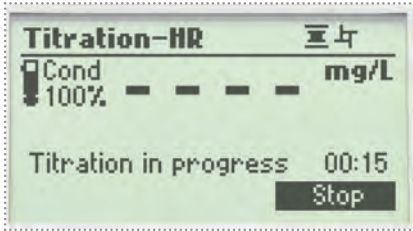
### Total Titratable Low to High Alkalinity

The HI 84431 is a dedicated mini titrator and pH meter designed for low to high levels of alkalinity. It utilizes an electrometric titration with a pH electrode to determine the total titratable alkalinity in water. Titrant is slowly added to the sample solution the pH and temperature are carefully monitored. The software analyzes the resulting pH curve and determines the volume of titrant required to reach the endpoint. The user can choose either 8.3 pH (known as phenolphthalein alkalinity) or 4.5 pH (known as bromcresol green alkalinity as endpoints).

The dispensed titrant volume is used to automatically calculate the water alkalinity, which can be displayed in mg/L  $\text{CaCO}_3$  or meq/L. Titrations are conducted using the low range reagent HI 84431-50 (10 to 500 mg/L as  $\text{CaCO}_3$ ) or the high range reagent HI84431-51 (400 to 4000 mg/L as  $\text{CaCO}_3$ ).

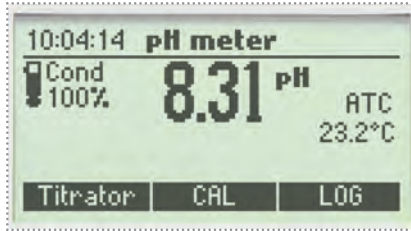
Total titratable alkalinity is a measure of primarily three types of alkalinities present in a water sample: hydroxide, carbonate and bicarbonate. Alkalinity in water can be the result of contributions from common chemicals including carbonate, bicarbonate, hydroxide, phosphates, borate and organic acid salts.

The alkalinity of a water sample indicates the ability to resist pH change, mostly due to the bicarbonate/ carbonate buffer. A low alkalinity level indicates that the water is susceptible to pH changes. While a high alkalinity level indicates that the water will be able to resist pH changes. Alkalinity can also be used to determine the corrosive capacity of water and water hardness.



Electrode condition on display

These titrators feature a pH meter which also displays the electrode condition on the LCD.



Easy and clear measurement

These titrators are designed to measure in a few easy steps. The results are displayed directly on the screen.



Peristaltic pump

Titrant only makes direct contact with the titrant tubing and not the pump interior virtually eliminating titrant contamination and ensuring a long pump operating life.

SPECIFICATIONS		HI 84431 Total Titratable Very Low Level Alkalinity	HI 84442 Total Titratable Ultra Low Level Alkalinity
Range	Total Titratable Alkalinity (Very Low/Ultra Low Range)	mg/L (ppm) : 10.0 - 500.0 mg/L (ppm) as CaCO <sub>3</sub> meq/L : 0.3 - 10.0 meq/L	mg/L (ppm) : 3.00-10.00 mg/L (ppm) as CaCO <sub>3</sub> meq/L : 0.06-0.20 meq/L
	Total Titratable Alkalinity (HR)	mg/L (ppm) : 400 - 4000 mg/L (ppm) as CaCO <sub>3</sub> meq/L : 8 - 80 meq/L	-
	pH	-2.0 to 16.0 pH / -2.00 to 16.00 pH	
	Temperature	-20.0 to 120.0 °C (-4.0 to 248.0 °F)	
Resolution	Total Titratable Alkalinity (VL/UL)	0.1 mg/L (ppm); 0.1 meq/L	0.01 mg/L; 0.01 meq/L
	Total Titratable Alkalinity (HR)	1 mg/L (ppm); 1 meq/L	-
	pH	0.1 pH / 0.01 pH	
	Temperature	0.1 °C	
Accuracy (@25°C/77°F)	Titratable Alkalinity (VL/UL)	5% of reading	
	Titratable Alkalinity (HR)	5% of reading	
	pH	± 0.01 pH	
	Temperature	±0.4 °C without probe error	
Titration Method		acid-base titration (total alkalinity)	
Titration Principle		endpoint titration: 4.5 pH / 8.3 pH	endpoint titration: 4.5 pH
Pump Volume		0.5 mL/min	
Stirring Speed		600 rpm	700 rpm
pH Temperature Compensation		manual or automatic from: -20 to 120 °C (-4 to 248 °F)	
Logging	Titration	up to 50 samples	
	pH	up to 50 samples	
pH Calibration		one, two or three point calibration; three available buffers (4.01; 8.30; 10.01)	
pH Electrode		HI 1131B glass body pH electrode with BNC connector and 1 m (3.3') cable	
Temperature Probe		HI 7662-M stainless steel temperature probe with 1 m (3.3') cable(included)	
Environment		0 to 50 °C (32 to 122 °F); max 95% RH non-condensing	
Power Supply		12 VDC power adapter	
Dimensions		208 × 214 × 163 mm (8.2 × 8.4 × 6.4") (with beaker)	
Weight		2200 g (77 oz.)	

ORDERING INFORMATION

HI 84431-01 (115V) and HI 84431-02 (230V) are supplied with HI 84431-50 titrant solution low range (100 mL), HI 84431-51 titrant high range (100 mL) and HI 84431-55M pump calibration solution (230 mL).

HI 84442-01 (115V) and HI 84442-02 (230V) are supplied with HI 84442-50 titrant solution (100 mL), and HI 84442-55 pump calibration solution (230 mL).

Both meters are supplied with:

HI 1131B pH electrode, HI 7071 filling solution (30 mL), HI 7662-M temperature probe, HI 7061 cleaning solution, HI 7004M pH 4.01 buffer solution (230 mL), HI 70083M pH 8.30 buffer solution (230 mL), HI 7010M pH 10.01 buffer solution (230 mL), 100 mL beakers (2), tube set with dispensing tip, medium stir bars (2), 12 VDC adapter, Instructions and quick reference guide.

HI 84431 ACCESSORIES

- HI 84431-50 Titrant solution for low range, 100 mL
- HI 84431-51 Titrant solution for high range, 100 mL
- HI 84431-55M Pump calibration solution, 230 mL
- HI 84431-70 Reagents kit for low and high range (about 150 titrations)
- HI 84431-71 Reagents kit for low range (about 150 titrations)
- HI 84431-72 Reagents kit for high range (about 150 titrations)

HI 84442 ACCESSORIES

- HI 84442-50 Titrant solution (100 mL)
- HI 84442-55 Pump calibration solution (230 mL)

ACCESSORIES

- HI 70483T Tube set with cap for titrant bottle and tip
- HI 731319 Stir bar, 25 x 7 mm (10)
- HI 731342 Pipette for automatic dosage 2000 µL
- HI 731352 Tips for 2000 µL graduated pipette (4)
- HI 731341 Pipette for automatic dosage 1000 µL
- HI 731351 Tip for 1000 µL graduated pipette (25)