

# Turbidity and Free/Total Chlorine Portable Meter with CAL CHECK™ and Fast Tracker™ Technology, EPA Compliant

- High accuracy at low ranges
- Exclusive chlorine CAL CHECK™ calibration validation
- Exclusive Fast Tracker™ system
- User replaceable light source
- Two, three or four point turbidity calibration
- USB and RS232 PC connectivity
- GLP features
- Logging for up to 200 readings
- User friendly, backlit display with guidance codes
- Auto-off
- Battery % on startup
- Continuous current time on display

*FastTracker™*  
A new revolution in organized data management



The HI 93414 measures the most important parameters of drinking water: turbidity and free/total chlorine. Designed for water quality measurements, HI 93414 provides reliable and accurate readings on low turbidity and chlorine values. The HI 93414 meets and exceeds the requirements of USEPA and Standard Methods both for turbidity and colorimetric measurements.

This instrument incorporates an optical system which guarantees accurate results. The optical system, consisting of a tungsten filament lamp, three detectors (scattered, transmitted for turbidimeter range and one for colorimeter range), and a narrow band interference filter @ 525 nm assures long term stability and minimizes stray light and color interferences. It also compensates for variations in intensity of the lamp, making no need for frequent calibration. The 25 mm round cuvettes made from special optical glass guarantee repeatability and consistency of measurements.

Turbidity measurements can be made in the 0.00 to 1000 NTU (Nephelometric Turbidity Units) range. The instrument has an EPA compliance reading mode which rounds readings to meet EPA reporting requirements. Depending on the measured sample and needed accuracy, normal measurement, continuous measurement or signal averaging measurement can be selected. Free or total chlorine measurements can be made in the 0.00 to 5.00 mg/L (ppm) range.

At startup, the meter displays the percentage of remaining battery life and, if too low, a 'low battery' warning message is displayed.



With the powerful CAL CHECK™ function, performance of the instrument can be validated at any time by using the exclusive HANNA ready-made NIST traceable standards. Calibration can be performed at any time for turbidity and colorimetric range. For turbidity, a two, three or four-point calibration is available using supplied (<0.1, 15, 100 and 750 NTU adjustable calibration points) or user prepared standards. For colorimeter measurements, a one-point calibration can be performed.

HI 93414 has complete GLP (Good Laboratory Practice) functions that allow traceability of the calibration conditions. The last calibration points, time and date can be checked at the touch of a button. HI 93414 has a user-friendly interface with an easy to read, large (LCD). Displayed codes guide the user step by step with routine operation and through calibration. Confirmation and error acoustic signals aid the user during instrument operation.

For advanced field applications, the HI 93414 is equipped with Fast Tracker™-Tag Identification System (T.I.S.) that makes data collecting and management simpler than ever. Fast Tracker™ allows users to record the time and location of a specific measurement or series of measurements.

With its logging function, up to 200 measurements along with its tagged locations can be stored in internal memory and consulted at any time. Data can be later transferred to a PC via RS232 or USB interface and HANNA HI 92000 software (optional).



## CAL CHECK™ Calibration Validation

With HANNA's exclusive CAL CHECK™ validation function users are able to verify the performance of the instrument at any time. Using HANNA's exclusive ready-made, NIST traceable standards, validation is user friendly and ensures that the meter is properly calibrated.

## iButton® Tags are Easy to Install

Install tags near your sampling points for quick and easy iButton® readings. Each tag contains a computer chip with a unique identification code encased in stainless steel. You can install a practically unlimited amount of tags.



HI 93414 TURBIDITY	
Range	0.00 to 9.99; 10.0 to 99.9 and 100 to 1000 NTU
Range Selection	automatic
Resolution	0.01 NTU from 0.00 to 9.99 NTU; 0.1 NTU from 10.0 to 99.9 NTU; 1 NTU from 100 to 1000 NTU
Accuracy @25°C/77°F	±2% of reading plus 0.02 NTU
Repeatability	±1% of reading or 0.02 NTU, whichever is greater
Stray Light	< 0.02 NTU
Light Detector	silicon photocell
Method	Ratio Nephelometric Method (90°), ratio of scattered and transmitted light; adaptation of the USEPA Method 180.1 and Standard Method 2130 B
Measuring mode	normal, average, continuous
Turbidity Standards	< 0.1, 15, 100 and 750 NTU
Calibration	two, three or four-point calibration

HI 93414 FREE AND TOTAL CHLORINE	
Range	free Cl <sub>2</sub> : 0.00 to 5.00 mg/L; total Cl <sub>2</sub> : 0.00 to 5.00 mg/L
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L; 0.10 above 3.50 mg/L
Accuracy @25°C/77°F	±0.03 mg/L ±3% of reading (whichever is greater)
Detector	silicon photocell with 525 nm narrow band interference filter
Method	adaptation of the USEPA Method 330.5 and Standard Method 4500-Cl G. the reaction between chlorine and DPD reagent causes a pink tint in the sample.
Standards	1 mg/L free chlorine, 1 mg/L total chlorine
Calibration	one-point calibration

HI 93414 GENERAL SPECIFICATIONS	
Light Source	tungsten filament lamp
Lamp Life	greater than 100,000 readings
Log Memory	200 records
Serial Interface	USB or RS 232
Environment	up to 50°C (122°F); RH max 95% non-condensing
Power Supply	1.5V AA alkaline batteries (4) or AC adapter; auto-off after 15 minutes of non-use
Dimensions / Weight	224 x 87 x 77 mm (8.8 x 3.4 x 3.0") / 512 g (18 oz.)

## ORDERING INFORMATION

HI 93414-01 (115V) and HI 93414-02 (230V) is supplied with sample cuvettes and caps (5), calibration cuvettes for turbidimeter, calibration cuvettes for colorimeter, silicone oil, cuvette wiping tissue, scissors, batteries, AC adapter, instructions and rugged carrying case.

## REAGENTS AND STANDARDS

- HI 93414-11 CAL CHECK™ Calibration set for Free & Total Chlorine
- HI 93701-01 Reagents for 100 Free Chlorine tests
- HI 93701-03 Reagents for 300 Free Chlorine tests
- HI 93711-01 Reagents for 100 Total Chlorine tests
- HI 93711-03 Reagents for 300 Total Chlorine tests
- HI 98703-11 Turbidity calibration standards

## ACCESSORIES

- HI 93703-50 Cuvette cleaning solution, 230 mL
- HI 920005 Tag holders with tags (5)
- HI 98703-58 Silicone oil, 15 mL
- HI 93703-60 Caps for cuvettes (4)
- HI 731318 Cuvette cleaning cloth (4)
- HI 731331 Glass cuvettes (4)



- HI 92000 Windows® compatible software
- HI 920011 5 to 9 pin RS232 connection cable
- HI 920013 USB cable for PC connection