

HI83314

# Multiparameter Photometer with COD for Wastewater

with Digital pH Electrode Input

HI83314 benchtop photometer measures 10 different key wastewater quality parameters using 20 different methods that allow for multiple ranges and variations in chemistry for specific applications. The Chemical Oxygen Demand (COD) parameter is included for industrial and municipal wastewater treatment. The Phosphorous and Nitrogen parameters included are beneficial to municipal wastewater treatment customers that need to monitor their biological and chemical nutrient removal process. This photometer features an innovative optical system that uses LED's, narrow band interference filters, focusing lens and both a silicon photodetector for absorbance measurement and a reference detector to maintain a consistent light source ensures accurate and repeatable photometric readings every time.

To save valuable laboratory benchtop space, the HI83314 doubles as a professional pH meter with its digital pH/temperature electrode input. Now one meter can be used for both photometric and pH measurements.



- **Advanced optical system**
  - Innovative optical design that utilizes a reference detector and focusing lens to eliminate errors from changes in the light source and from imperfections in the glass cuvette.
- **Built-in Reaction Timer for Photometric Measurements**
  - The measurement is taken after the countdown timer expires.
  - Countdown timer ensures that all readings are taken at the appropriate reaction intervals regardless of user for better consistency in measurements
- **Absorbance mode**
  - Hanna's exclusive CAL Check cuvettes for validation of light source and detector
  - Allows for the user to plot concentration versus absorbance for a specific wavelength for use with user supplied chemistry or for teaching principles of photometry
- **Units of Measure**
  - Appropriate unit of measure along with chemical form is displayed along with reading
- **Result Conversion**
  - Automatically convert readings to other chemical forms with the touch of a button
- **Cuvette Cover**
  - Aids in preventing stray light from affecting measurements
- **Digital pH Electrode Input**
  - Measure pH and temperature with a single probe
  - Good Laboratory Practice (GLP) to track calibration information including date, time, buffers used, offset and slope for traceability
  - pH CAL Check alerts user to potential problems during the calibration process
  - Space saving having a pH meter and photometer built into one meter
- **Data Logging**
  - Up to 1000 photometric and pH readings can be stored by simply pressing the dedicated LOG button. Logged readings are just as easily recalled by pressing the RCL button
  - Sample ID and User ID information can be added to a logged reading using alphanumeric keypad
- **Backlit 128 x 64 Pixel Graphic LCD Display**
  - Backlit graphic display allows for easy viewing in low light conditions
  - The 128 x 64 Pixel LCD allows for a simplified user interface with virtual keys and on-screen help to guide the user through use of the meter
- **Connectivity**
  - Logged readings can be quickly and easily transferred to a flash drive using the USB-A host port or to a computer using the micro USB-B port
  - Data is exported as a .CSV file for use with common spreadsheet programs
- **Rechargeable Battery**
  - Li-polymer rechargeable battery lasts for 500 measurements or 50 hours of pH measurement
- **Battery Status Indicator**
  - Indicates the amount of battery life left
- **Error Messages**
  - Photometric error messages
  - pH calibration messages include clean electrode, check buffer and check probe

## Specifications

Measurement Channels		5 x optical channels 1 x digital electrode channel (pH measurement)
Photometer	Range	0.000 to 4.000 Abs
	Resolution	0.001 Abs
	Accuracy	±0.003 Abs @ 1.000 Abs
	Light Source	Light Emitting Diode
	Bandpass Filter Bandwidth	8 nm
	Bandpass Filter Wavelength Accuracy	± 1.0 nm
	Light Detector	Silicon photodiode
	Cuvette Types	Round, 24.6mm & 16mm diameter
Number of Methods		34
Probe	Range	-2.00 to 16.00 pH (± 1000.0 mV)*
	Resolution	0.01 pH (0.1 mV)
	Accuracy	0.01 pH (±0.2 mV) @ 25°C / 77°F
	Temperature Compensation	ATC, -5.0 to 100.0°C (23.0 to 212.0°F)*
	Calibration	two-point, from five available buffers (4.01, 6.86, 7.01, 9.18, 10.01 pH)
	Electrode	Intelligent pH / temperature electrode
Temperature	Range	-20.0 to 120.0°C (-4.0 to 248.0°F)
	Resolution	0.1°C (0.1°F)
	Accuracy	±0.5°C @ 25°C (±0.9°F @ 77°F)
Additional Specifications	Logging	1000 readings (mixed photometer and electrode)
	Display	128 x 64 pixel B/W LCD with backlight
	USB-A (Host) functions	Mass-storage host
	USB-B (Device) functions	Power input, mass-storage device
	Battery Life	> 500 photometer measurements or 50 hours of continuous pH measurement
	Power Supply	5 Vdc USB 2.0 power adapter / type micro-Bconnector 3.7 Vdc Li-polymer rechargeable battery, non-serviceable
	Environment	0 to 50°C (32 to 122°F) 0 to 95% RH, non-serviceable
	Dimensions	206 x 177 x 97mm (8.1 x 7.0 x 3.8")
Weight	1.0 kg (2.2 lbs.)	
Ordering Information	<b>HI83314-01</b> (115V) and <b>HI83314-02</b> (230V) is supplied with sample cuvette (4 pcs.), sample cuvette cap (4 pcs.), cloth for wiping cuvettes, scissors, USB cable, 5 Vdc power adapter, 16mm vial adapter, 16mm diameter vial with cap (5 pcs.), instrument quality certificate, and instruction manual.	
Standards	<b>HI83314-11</b> CAL Check Cuvette Kit for HI83314	

## HI83314 Parameter Specifications

Parameter	Range	Resolution	Accuracy	Wavelength	Method	Reagent Code
Ammonia Low Range	0.00 to 3.00 mg/L (as NH <sub>3</sub> -N)	0.01 mg/L	±0.04 mg/L ±4% of reading at 25 °C	420 nm	Adaptation of the ASTM Manual of Water and Environmental Technology, D1426 Nessler Method	<b>HI93700-01</b> Reagents for 100 tests <b>HI93700-03</b> Reagents for 300 tests
Ammonia Low Range (13 mm Vial)	0.00 to 3.00 mg/L (as NH <sub>3</sub> -N)	0.01 mg/L	± 0.10 mg/L or ± 5% of reading at 25 °C, whichever is greater	420 nm	Adaptation of the ASTM Manual of Water and Environmental Technology, D1426 Nessler Method	<b>HI93764A-25</b> Reagents for 25 tests
Ammonia Medium Range	0.00 to 10.00 mg/L (as NH <sub>3</sub> -N)	0.01 mg/L	± 0.05 mg/L ± 5% of reading at 25 °C, whichever is greater	420 nm	Adaptation of the ASTM Manual of Water and Environmental Technology, D1426, Nessler Method	<b>HI93715-01</b> Reagents for 100 tests <b>HI93715-03</b> Reagents for 300 tests
Ammonia High Range	0.0 to 100.0 mg/L (as NH <sub>3</sub> -N)	0.1 mg/L	±0.5 mg/L ± 5% of reading at 25 °C	420 nm	Adaptation of the ASTM Manual of Water and Environmental Technology, D1426, Nessler Method	<b>HI93733-01</b> Reagents for 100 tests <b>HI93733-03</b> Reagents for 300 tests
Ammonia High Range (13 mm Vial)	0.0 to 100.0 mg/L (as NH <sub>3</sub> -N)	0.1 mg/L	± 1.0 mg/L or ± 5% of reading at 25 °C, whichever is greater	420 nm	Adaptation of the ASTM Manual of Water and Environmental Technology, D1426 Nessler Method	<b>HI93764B-25</b> Reagents for 25 tests

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Parameter	Range	Resolution	Accuracy	Wavelength	Method	Reagent Code
Chlorine, Free	0.00 to 5.00 mg/L (as Cl <sub>2</sub> )	0.01 mg/L	±0.03 mg/L ±3% of reading at 25 °C	525 nm	Adaptation of the EPA DPD Method 330.5	<b>HI93701-F</b> Reagents for 300 tests (liquid) <b>HI93701-01</b> Reagents for 100 tests (powder) <b>HI93701-03</b> Reagents for 300 tests (powder)
Chlorine, Total	0.00 to 5.00 mg/L (as Cl <sub>2</sub> )	0.01 mg/L	±0.03 mg/L ±3% of reading at 25 °C	525 nm	Adaptation of the EPA DPD Method 330.5	<b>HI93701-T</b> Reagents for 300 tests (liquid) <b>HI93711-01</b> Reagents for 100 total tests (powder) <b>HI93711-03</b> Reagents for 300 total tests (powder)
Chromium (VI)/Total (13 mm Vial)	0 to 1000 µg/L (as Cr)	1 µg/L	±10 µg/L ± 3% of reading	525 nm	Adaptation of the Standard Methods of the Examination of Water and Wastewater, 22nd Edition, 3500-Cr, Diphenylcarbazide Method	<b>HI96781-25</b> Reagents for 25 tests
Chemical Oxygen Demand Low Range (13 mm Vial)	0 to 150 mg/L (as O <sub>2</sub> )	1 mg/L	±5 mg/L or ±4% of reading at 25 °C, whichever is greater	420 nm	Adaptation of the EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	<b>HI93754A-25</b> Reagents EPA Low Range for 24 tests <b>HI93754D-25</b> Reagents Hg Free Low Range for 24 tests <b>HI93754F-25</b> Reagents ISO Low Range for 24 tests
Chemical Oxygen Demand Medium Range (13 mm Vial)	0 to 1500 mg/L (as O <sub>2</sub> )	1 mg/L	±15 mg/L or ±4% of reading at 25 °C, whichever is greater	610 nm	Adaptation of the EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	<b>HI93754B-25</b> Reagents EPA Medium Range for 24 tests <b>HI93754E-25</b> Reagents Hg Free Medium Range for 24 tests <b>HI93754G-25</b> Reagents ISO Medium Range for 24 tests
Chemical Oxygen Demand High Range EPA (13 mm Vial)	0 to 15000 mg/L (as O <sub>2</sub> )	1 mg/L	±150 mg/L or ±2% of reading at 25 °C, whichever is greater	610 nm	Adaptation of the EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	<b>HI93754C-25</b> Reagents for 24 tests
Chemical Oxygen Demand Ultra High Range (13 mm Vial)	0.0 to 60.0 ppt (as O <sub>2</sub> )	0.1 ppt	±0.5 ppt ±3% of reading @ 25°C	610 nm	Adaptation of the EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	<b>HI93754J-25</b> Reagents for 24 tests
Iron (13 mm Vial)	0.00 to 6.00 mg/L (as Fe)	0.01 mg/L	±0.10 mg/L or ±3% of reading at 25°C	525 nm	Adaptation of Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 3500-Fe B, Phenanthroline Method	<b>HI96786-25</b> Reagents for 25 tests
Iron Total (13 mm Vial)	0.00 to 7.00 mg/L (as Fe)	0.01 mg/L	±0.20 mg/L or ±3% of reading, whichever is greater	525 nm	Adaptation of Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 3500-Fe B, Phenanthroline Method	<b>HI96778-25</b> Reagents for 25 tests
Nitrate (13 mm Vial)	0.0 to 30.0 mg/L (as NO <sub>3</sub> <sup>-</sup> -N)	0.1 mg/L	±1.0 mg/L or ±3% of reading at 25 °C, whichever is greater	420 nm	Chromotropic Acid Method	<b>HI93766-50</b> Reagents for 50 tests
Nitrite Low Range	0 to 600 µg/L (as NO <sub>2</sub> <sup>-</sup> -N)	1 µg/L	±20 µg/L ±4% of reading at 25 °C	466 nm	Adaptation of the EPA Diazotization Method 354.1	<b>HI93707-01</b> Reagents for 100 tests <b>HI93707-03</b> Reagents for 300 tests
Nitrite Low Range (13 mm Vial)	0 to 600 µg/L (as NO <sub>2</sub> <sup>-</sup> -N)	1 µg/L	±10 µg/L ± 3% of reading at 25°C, whichever is greater	525 nm	Adaptation of the Standard Method for the Examination of Water and Wastewater, 23rd Edition, 4500B Diazotization Method, Nitrogen Nitrite	<b>HI96783-25</b> Reagents for 25 tests
Nitrite Medium Range (13 mm Vial)	0.00 to 6.00 mg/L (as NO <sub>2</sub> <sup>-</sup> -N)	0.01 mg/L	±0.10 mg/L ± 3% of reading at 25°C	525 nm	Adaptation of the Standard Method for the Examination of Water and Wastewater, 23rd Edition, 4500B Diazotization Method, Nitrogen Nitrite	<b>HI96784-25</b> Reagents for 25 tests
Nitrite High Range	0 to 150 mg/L (as NO <sub>2</sub> <sup>-</sup> )	1 mg/L	±4 mg/L ±4% of reading at 25 °C	575 nm	Adaptation of the Ferrous Sulfate Method	<b>HI93708-01</b> Reagents for 100 tests <b>HI93708-03</b> Reagents for 300 tests
Nitrogen, Total Low Range (13 mm Vial)	0.0 to 25.0 mg/L (as N)	0.1 mg/L	±1.0 mg/L or ±5% of reading at 25 °C, whichever is greater	420 nm	Chromotropic Acid Method	<b>HI93767A-50</b> Reagents for up to 49 tests
Nitrogen, Total High Range (13 mm Vial)	10 to 150 mg/L (as N)	1 mg/L	±3 mg/L or ±4% of reading at 25 °C, whichever is greater	420 nm	Chromotropic Acid Method	<b>HI93767B-50</b> Reagents for up to 49 tests

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Parameter	Range	Resolution	Accuracy	Wavelength	Method	Reagent Code
Phosphorus, Acid Hydrolyzable (13 mm Vial)	0.00 to 1.60 mg/L (as P)	0.01 mg/L	±0.05 mg/L or ±5% of reading at 25 °C, whichever is greater	610 nm	Adaptation of the EPA method 365.2 and Standard Methods for the Examination of Water and Wastewater, 20th Edition, 4500-P-E, Ascorbic Acid Method	<b>HI93758B-50</b> Reagents for 50 tests
Phosphorus, Reactive Low Range (13 mm Vial)	0.00 to 1.60 mg/L (as P)	0.01 mg/L	±0.05 mg/L or ±4% of reading at 25 °C, whichever is greater	610 nm	Adaptation of the EPA method 365.2 and Standard Methods for the Examination of Water and Wastewater, 20th Edition, 4500-P-E, Ascorbic Acid Method	<b>HI93758A-50</b> Reagents for 50 tests
Phosphorus, Reactive High Range (13 mm Vial)	0.0 to 32.6 mg/L (as P)	0.1 mg/L	±0.5 mg/L or ±4% of reading at 25 °C, whichever is greater	420 nm	Adaptation of the Standard Methods for the Examination of Water and Wastewater, 20th Edition, 4500-P C, Vanadomolybdophosphoric Acid Method	<b>HI93763A-50</b> Reagents for up to 49 tests
Phosphorus, Total Low Range (13 mm Vial)	0.00 to 1.15mg/L (as P)	0.01 mg/L	±0.05 mg/L or ±6% of reading at 25 °C, whichever is greater	610 nm	Adaptation of the EPA method 365.2 and Standard Methods for the Examination of Water and Wastewater, 20th Edition, 4500-P-E, Ascorbic Acid Method	<b>HI93758C-50</b> Reagents for 50 tests
Phosphorus, Total High Range (13 mm Vial)	0.0 to 32.6 mg/L (as P)	0.1 mg/L	±0.5 mg/L or ±5% of reading at 25 °C, whichever is greater	420 nm	Adaptation of the Standard Methods for the Examination of Water and Wastewater, 20th Edition, 4500-P C, Vanadomolybdophosphoric Acid Method	<b>HI93763B-50</b> Reagents for up to 49 tests
Surfactants, Anionic (13 mm Vial)	0.00 to 3.50 mg/L (as SDBS)	0.01 mg/L	±0.10 mg/L ±5% of reading at 25 °C	610 nm	Adaptation of the Standard Method for the Examination of Water and Wastewater, 23rd Edition, 5540C, Anionic Surfactants as MBAS	<b>HI96782-25</b> Reagents for 25 tests
Surfactants, Cationic (13 mm Vial)	0.00 to 2.50 mg/L (as CTAB)	0.01 mg/L	±0.15 ppm ±3% of reading at 25 °C	420 nm	Bromophenol Blue Method	<b>HI96785-25</b> Reagents for 25 tests
Surfactants, Nonionic (13 mm Vial)	0.00 to 6.00 mg/L (TRITON X-100)	0.01 mg/L	±0.10 mg/L ±5% of reading at 25 °C	610 nm	TBPE Method	<b>HI96780-25</b> Reagents for 24 tests



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