

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.



## Specifications

|                           |                                     |  |
|---------------------------|-------------------------------------|--|
| Measurement Channels      |                                     | 5 x optical channels; 1 x digital electrode channel (pH measurement)   |
| Absorbance                | Range                               | 0.000 to 4.000 Abs   |
|                           | Resolution                          | 0.001 Abs  |
|                           | Accuracy                            | ±0.003 Abs (at 1.000 Abs)  |
|                           | Light Source                        | light-emitting diode   |
|                           | Bandpass Filter Bandwidth           | 8 nm   |
|                           | Bandpass Filter Wavelength Accuracy | ± 1.0 nm   |
|                           | Light Detector                      | silicon photocell  |
|                           | Cuvette Type                        | round, 24.6 mm diameter and 16 mm diameter   |
| pH                        | Number of Methods                   | 128 max  |
|                           | Range                               | -2.00 to 16.00 pH (±1000 mV)*  |
|                           | Resolution                          | 0.01 pH (0.1 mV)   |
| Temperature               | Temperature Compensation            | Automatic (-5.0 to 100.0°C; 23.0 to 212.0°F)*  |
|                           | Range                               | -20 to 120°C (-4.0 to 248.0 °F)  |
| Additional Specifications | Resolution                          | 0.1 °C (0.1 °F)  |
|                           | pH electrode                        | digital pH electrode (not included)  |
|                           | Logging                             | 1000 readings (mixed photometer and electrode); log on demand with user name and sample ID optional input        |
|                           | Display                             | 128 x 64 pixel LCD with backlight  |
|                           | Connectivity                        | USB-A host for flash drive; micro-USB-B for power and computer connectivity                                      |
|                           | Battery Life                        | 3.7 VDC Li-polymer rechargeable battery / >500 photometric measurements or 50 hours of continuous pH measurement |
|                           | Power Supply                        | 5 VDC USB 2.0 power adapter with USB-A to micro-USB-B cable (included)   |
|                           | Environment                         | 0 to 50°C (32 to 122°F); 0 to 95% RH, non-condensing   |
|                           | Dimensions                          | 206 x 177 x 97 mm (8.1 x 7.0 x 3.8 in.)  |
|                           | Weight                              | 1.0 kg (2.2 lbs.)  |

- **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

| Parameter                                 | Range   | Resolution        | Accuracy (@ 25°C)  | LED (▲ nm)<br>with Narrow Band<br>Interference Filter | Method  | Reagent Code  |
|---|---|-------------------|--|---|---|---|
| Ammonia LR                                | 0.00 to 3.00 mg/L (as NH <sub>3</sub> -N)   | 0.01 mg/L         | ±0.04 mg/L ±4% of reading                                | @ 420 nm  | Nessler   | <b>HI93700-01</b> 100 tests   |
| Ammonia LR (16 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, whichever is greater     | @ 420 nm  | Nessler   | <b>HI93764A-25</b> 25 tests   |
| Ammonia MR                                | 0.00 to 10.00 mg/L (as NH <sub>3</sub> -N)  | 0.01 mg/L         | ±0.05 mg/L ±5% of reading                                | @ 420 nm  | Nessler   | <b>HI93715-01</b> 100 tests   |
| Ammonia HR                                | 0.0 to 100.0 mg/L (as NH <sub>3</sub> -N)   | 0.1 mg/L          | ±0.5 mg/L ±5% of reading                                 | @ 420 nm  | Nessler   | <b>HI93733-01</b> 100 tests   |
| Ammonia HR (16 mm vial)                   | 0.0 to 100.0 mg/L (as NH <sub>3</sub> -N)   | 0.1 mg/L          | ± 1 mg/L or ± 5% of reading, whichever is greater        | @ 420 nm  | Nessler   | <b>HI93764B-25</b> 25 tests   |
| 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                                | @ 525 nm  | DPD   | <b>HI93701-01</b> 100 tests   |
| Chlorine, Total                           | 0.00 to 5.00 mg/L (as Cl <sup>-</sup> )   | 0.01 mg/L         | ±0.03 mg/L ±3% of reading                                | @ 525 nm  | DPD   | <b>HI93711-01</b> 100 tests   |
| Chromium, Total and VI (16 mm vial)       | 0 - 1000 ug/L (as Cr)   | 1 µg/L            | ±10 µg/L ±3% of reading                                  | @ 525 nm  | diphenylcarbohydrazide                                | <b>HI96781-25</b> 25 tests  |
| COD LR (16 mm vial)*                      | 0 to 150 mg/L (as O <sub>2</sub> )  | 1 mg/L            | ±5 mg/L or ±4% of reading @ 25°C, whichever is greater   | @ 420 nm  | dichromate ISO dichromate EPA mercury-free dichromate | <b>HI93754A-25</b> 24 tests<br><b>HI93754D-25</b> 24 tests<br><b>HI93754F-25</b> 24 tests |
| COD MR (16 mm vial)*                      | 0 to 1500 mg/L (as O <sub>2</sub> )   | 1 mg/L            | ±15 mg/L or ±4% of reading @ 25°C, whichever is greater  | @ 610 nm  | dichromate ISO dichromate EPA mercury-free dichromate | <b>HI93754B-25</b> 24 tests<br><b>HI93754E-25</b> 24 tests<br><b>HI93754G-25</b> 24 tests |
| COD HR (16 mm vial)*                      | 0 to 15000 mg/L (as O <sub>2</sub> )  | 1 mg/L            | ±150 mg/L or ±2% of reading @ 25°C, whichever is greater | @ 610 nm  | dichromate  | <b>HI93754C-25</b> 24 tests   |
| COD UHR (16 mm vial)                      | 0.0 to 60.0 g/L (as O <sub>2</sub> )  | 0.1 g/L           | ±0.5 mg/L ±3% of reading                                 | @ 610 nm  | dichromate  | <b>HI93754J-25</b> 100 tests  |
| Iron, Total (16 mm vial)                  | 0.00 to 7.00 mg/L (as Fe)   | 0.01 mg/L         | ±0.20 mg/L or ± 3%, whichever is greater                 | @525 nm   | phenanthroline  | <b>HI96778-25</b> 25 tests  |
| Nitrate (16 mm vial)                      | 0.0 to 30.0 mg/L Nitrate (as NO <sub>3</sub> <sup>-</sup> N)  | 0.1 mg/L          | ±1.0 mg/L or ±3% of reading, whichever is greater        | @ 420 nm  | chromotropic acid                                     | <b>HI93766-50</b> 50 tests  |
| <del>Nitrite ULR, Marine</del>            | <del>0 to 200 µg/L (as NO<sub>2</sub><sup>-</sup> N)</del>  | <del>1 µg/L</del> | <del>±10 µg/L ±4% of reading</del>                       | <del>@ 466 nm</del>                                   | <del>diazotization</del>                              | <del><b>HI764-25</b> 25 tests</del>   |
| Nitrite LR                                | 0 to 600 µg/L (as NO <sub>2</sub> <sup>-</sup> N)   | 1 µg/L            | ±20 µg/L ±4% of reading                                  | @ 466 nm  | diazotization   | <b>HI93707-01</b> 100 tests   |
| Nitrite LR (16 mm vial)                   | 0 to 600 µg/L (as NO <sub>2</sub> <sup>-</sup> N)   | 1 µg/L            | ±10 µg/L ±3% of reading                                  | @ 525 nm  | diazotization   | <b>HI96783-25</b> 25 tests  |
| Nitrite MR (16 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                                | @ 525 nm  | diazotization   | <b>HI96784-25</b> 25 tests  |
| Nitrite HR                                | 0 to 150 mg/L (as NO <sub>2</sub> <sup>-</sup> N)   | 1 mg/L            | ±4 mg/L ±4% of reading                                   | @ 575 nm  | ferrous sulfate                                       | <b>HI93708-01</b> 100 tests   |
| Nitrogen, Total LR (16 mm vial)           | 0.0 to 25.0 mg/L (as <del>NO<sub>3</sub><sup>-</sup></del> N)   | 0.1 mg/L          | ±1.0 mg/L or ±5% of reading, whichever is greater        | @ 420 nm  | chromotropic acid                                     | <b>HI93767A-50</b> 49 tests   |
| Nitrogen, Total HR (16 mm vial)           | 0 to 150 mg/L (as N)  | 1 mg/L            | ±3 mg/L or ±4% of reading, whichever is greater          | @ 420 nm  | chromotropic acid                                     | <b>HI93767B-50</b> 49 tests   |
| Phosphorus Reactive LR (16 mm vial)       | 0.00 to 1.60 mg/L (as P)  | 0.01 mg/L         | ±0.05 mg/L or ±4% of reading, whichever is greater       | @ 610 nm  | ascorbic acid   | <b>HI93758A-50</b> 50 tests   |
| Phosphorus Reactive HR (16 mm vial)       | 0.0 to 32.6 mg/L (as P)   | 0.1 mg/L          | ±0.5 mg/L or ±4% of reading, whichever is greater        | @ 420 nm  | vanadomolybdophosphoric acid                          | <b>HI93763A-50</b> 49 tests   |
| Phosphorus Acid Hydrolyzable (16 mm vial) | 0 to 1.6 mg/L (ppm) (as P)  | 0.1 mg/L          | ±0.05 mg/L or ±5% of reading, whichever is greater       | @ 610 nm  | ascorbic acid   | <b>HI93758B-50</b> 50 tests   |
| Phosphorus, Total LR (16 mm vial)         | 0.00 to 1.15 mg/L (as P)  | 0.01 mg/L         | ±0.05 mg/L or ±6% of reading, whichever is greater       | @ 610 nm  | ascorbic acid   | <b>HI93758C-50</b> 50 tests   |
| Phosphorus, Total HR (16 mm vial)         | 0.0 to 32.6 mg/L (as P)   | 0.1 mg/L          | ±0.5 mg/L or ±5% of reading, whichever is greater        | @ 420 nm  | vanadomolybdophosphoric acid                          | <b>HI93763B-50</b> 49 tests   |
| Surfactants Anionic (16 mm vial)          | 0.00 to 3.50 mg/L (as SDBS)   | 0.01 mg/L         | ±0.10 mg/L ±5% of reading                                | @ 610 nm  | methylene blue  | <b>HI96782-25</b> 25 tests  |
| Surfactants Nonionic (16 mm vial)         | 0.00 to 6.00 mg/L (as TRITON X-100)   | 0.01 mg/L         | ±0.10 mg/L ±5% of reading                                | @ 610 nm  | TBPE  | <b>HI96780-25</b> 24 tests  |
| <b>Ordering Information</b>               | <b>HI83314-01</b> (115V) and <b>HI83314-02</b> (230V) is supplied with sample cuvettes and caps (4 ea.), digestion vials (6), vial adapter, cloth for wiping cuvettes, USB to micro USB cable connector, power adapter, instrument quality certificate, and instruction manual. |                   |  |   |   |   |
| <b>Standards</b>                          | <b>HI83314-11</b> CAL Check Cuvette Kit for HI83399   |                   |  |   |   |   |

\*COD Rapid Method available.