

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.
- **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
- **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



Application Designed Photometers



- **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
- **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) |
| 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 |
| Number of Methods | | 128 max |
| pH | Range | -2.00 to 16.00 pH (±1000 mV)* |
| | Resolution | 0.01 pH (0.1 mV) |
| | Temperature Compensation | Automatic (-5.0 to 100.0°C; 23.0 to 212.0°F)* |
| Temperature | Range | -20 to 120°C (-4.0 to 248.0 °F) |
| | Resolution | 0.1 °C (0.1 °F) |
| Additional Specifications | 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.) |

| Parameter | Range | Resolution | Accuracy | LED (λ nm) with Narrow Band Interference Filter | Method |
|---|---|------------|---|---|------------------------------|
| Ammonia Low Range | 0.00 to 3.00 mg/L (as NH ₃ -N) | 0.01 mg/L | ±0.04 mg/L ±4% of reading at 25 °C | @ 420 nm | Nessler |
| Ammonia Low Range (16 mm vial) | 0.00 to 3.00 mg/L (as NH ₃ -N) | 0.01 mg/L | ± 0.10 mg/L or ± 5% of reading at 25 °C, whichever is greater | @ 420 nm | Nessler |
| Ammonia Medium Range | 0.00 to 10.00 mg/L (as NH ₃ -N) | 0.01 mg/L | ±0.05 mg/L ±5% of reading at 25 °C | @ 420 nm | Nessler |
| Ammonia High Range | 0.0 to 100.0 mg/L (as NH ₃ -N) | 0.1 mg/L | ±0.5 mg/L ±5% of reading at 25 °C | @ 420 nm | Nessler |
| Ammonia High Range (16 mm vial) | 0.0 to 100.0 mg/L (as NH ₃ -N) | 0.1 mg/L | ± 1 mg/L or ± 5% of reading at 25 °C, whichever is greater | @ 420 nm | Nessler |
| Chlorine, Free | 0.00 to 5.00 mg/L (as Cl ₂) | 0.01 mg/L | ±0.03 mg/L ±3% of reading at 25 °C | @ 525 nm | DPD |
| Chlorine, Total | 0.00 to 5.00 mg/L (as Cl ⁻) | 0.01 mg/L | ±0.03 mg/L ±3% of reading at 25 °C | @ 525 nm | DPD |
| COD Low Range (16 mm vial) | 0 to 150 mg/L (as O ₂) | 1 mg/L | ±5 mg/L or ±4% of reading @ 25 °C, whichever is greater | @ 420 nm | dichromate mercury-free |
| COD Medium Range (16 mm vial) | 0 to 1500 mg/L (as O ₂) | 1 mg/L | ±15 mg/L or ±4% of reading @ 25 °C, whichever is greater | @ 610 nm | dichromate mercury-free |
| COD HR (16 mm vial) | 0 to 15000 mg/L (as O ₂) | 1 mg/L | ±150 mg/L or ±2% of reading @ 25 °C, whichever is greater | @ 610 nm | dichromate |
| Nitrate (16 mm vial) | 0.0 to 30.0 mg/L (as NO ₃ ⁻ -N) | 0.1 mg/L | ±1.0 mg/L or ±3% of reading at 25 °C, whichever is greater | @ 420 nm | chromotropic acid |
| Nitrite Ultra Low Range, Marine | 0 to 200 µg/L (as NO ₂ ⁻ -N) | 1 µg/L | ±10 µg/L ±4% of reading at 25 °C | @ 466 nm | diazotization |
| Nitrite Low Range | 0 to 600 µg/L (as NO ₂ ⁻ -N) | 1 µg/L | ±20 µg/L ±4% of reading at 25 °C | @ 466 nm | diazotization |
| Nitrite High Range | 0 to 150 mg/L (as NO ₂ ⁻ -N) | 1 mg/L | ±4 mg/L ±4% of reading at 25 °C | @ 575 nm | ferrous sulfate |
| Nitrogen, Total Low Range (16 mm vial) | 0.0 to 25.0 mg/L (as NO ₃ ⁻ -N) | 0.1 mg/L | ±1.0 mg/L or ±5% of reading at 25 °C, whichever is greater | @ 420 nm | chromotropic acid |
| Nitrogen, Total High Range (16 mm vial) | 0 to 150 mg/L (as N) | 1 mg/L | ±3 mg/L or ±4% of reading at 20 °C, whichever is greater | @ 420 nm | chromotropic acid |
| Phosphorus Reactive Low Range (16 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 | ascorbic acid |
| Phosphorus Reactive High Range (16 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 | vanadomolybdophosphoric acid |
| 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 at 25 °C, whichever is greater | @ 610 nm | ascorbic acid |
| Phosphorus, Total Low Range (16 mm vial) | 0.00 to 1.15 mg/L (as P) | 0.01 mg/L | ±0.05 mg/L or ±6% of reading at 25 °C, whichever is greater | @ 610 nm | ascorbic acid |
| Phosphorus, Total High Range (16 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 | vanadomolybdophosphoric acid |

Ordering Information

HI83314-01 (115V) and **HI83314-02** (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 and instruction manual.

Standards

HI83314-11 CAL Check Cuvette Kit for HI83399