

HI83305

Multiparameter Photometer

with Digital pH Electrode Input
for Boilers and Cooling Towers

The HI83305 benchtop photometer measures 18 different key water quality parameters using 32 different methods. This photometer features an innovative optical system that use an LED, a narrow band interference filter, a focusing lens, and both a silicon photodetector for absorbance measurement and a reference detector to maintain a consistent light source to ensure accurate and repeatable photometric readings every time.

Specially designed for use with boilers and cooling towers, the HI83305 is a comprehensive way to maintain precise water conditions within these systems. Problems such as corrosion, deposition, and microbial growth can occur if these key parameters, such as oxygen scavengers and silica, aren't maintained. Oxygen scavengers are added to remove residual dissolved oxygen in boiler feed water that can cause corrosion in a steam generating plant. It is important that levels of oxygen scavengers be routinely checked to prevent corrosion and ensure that equipment is working efficiently. Boiler water maintenance is necessary to prevent or control deposit formation as seen with silica. Silica contamination can reduce system efficiency and increase maintenance of equipment due to scaling.

• 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



• 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

• Battery Status Indicator

- Indicates the amount of battery life left

• 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 the 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

• Error Messages

- Photometric error messages
- pH calibration messages include clean electrode, check buffer and check probe



| Parameter | Range | Resolution | Accuracy | Wavelength | Method | Reagent Code |
|---|---|------------|-------------------------------------|------------|--|--|
| Aluminum | 0.00 to 1.00 mg/L (as Al ³⁺) | 0.01 mg/L | ±0.04 mg/L ±4% of reading at 25 °C | 525 nm | Adaptation of the Aluminon Method | HI93712-01 Reagents for 100 tests HI93712-03 Reagents for 300 tests |
| 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 | Adaptation of the ASTM Manual of Water and Environmental Technology, D1426 Nessler Method | HI93700-01 Reagents for 100 tests HI93700-03 Reagents for 300 tests |
| 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 | Adaptation of the ASTM Manual of Water and Environmental Technology, D1426, Nessler Method | HI93715-01 Reagents for 100 tests HI93715-03 Reagents for 300 tests |
| 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 | Adaptation of the ASTM Manual of Water and Environmental Technology, D1426, Nessler Method | HI93733-01 Reagents for 100 tests HI93733-03 Reagents for 300 tests |
| Bromine | 0.00 to 8.00 mg/L (as Br ₂) | 0.01 mg/L | ±0.08 mg/L ±3% of reading at 25 °C | 525 nm | Adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th Edition, DPD Method | HI93716-01 Reagents for 100 tests HI93716-03 Reagents for 300 tests |
| Chlorine Dioxide | 0.00 to 2.00 mg/L (as ClO ₂) | 0.01 mg/L | ±0.10 mg/L ±5% of reading at 25 °C | 575 nm | Adaptation of the Chlorophenol Red Method | HI93738-01 Reagents for 100 tests HI93738-03 Reagents for 300 tests |
| Chlorine Dioxide (Rapid) | 0.00 to 2.00 mg/L (as ClO ₂) | 0.01 mg/L | ±0.10 mg/L ±5% of reading at 25 °C | 525 nm | Adaptation of Standard Methods for the Examination of Water and Wastewater, 18th Edition, 4500 ClO ₂ D | HI96779-01 Reagents for 100 tests HI96779-03 Reagents for 300 tests |
| 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 | Adaptation of the EPA DPD Method 330.5 | HI93701-F 300 tests (liquid) HI93701-01 100 tests (powder) HI93701-03 300 tests (powder) HI93701-T 300 tests (liquid) |
| Chlorine, Total | 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 | Adaptation of the EPA DPD Method 330.5 | HI93711-01 100 total tests (powder) HI93711-03 300 total tests (powder) |
| Chromium (VI) Low Range | 0 to 300 µg/L (as Cr(VI)) | 1 µg/L | ±10 µg/L ±4% of reading at 25 °C | 525 nm | Adaptation of the ASTM Manual of Water and Environmental Technology, D1687 Diphenylcarbohydrazide Method | HI93749-01 Reagents for 100 tests HI93749-03 Reagents for 300 tests |
| Chromium (VI) High Range | 0 to 1000 µg/L (as Cr(VI)) | 1 µg/L | ±5 µg/L ±4% of reading at 25 °C | 525 nm | Adaptation of the ASTM Manual of Water and Environmental Technology, D1687-92, Diphenylcarbohydrazide Method | HI93723-01 Reagents for 100 tests HI93723-03 Reagents for 300 tests |
| Copper Low Range | 0.000 to 1.500 mg/L (as Cu ²⁺) | 0.001 mg/L | ±0.010 mg/L ±5% of reading at 25 °C | 575 nm | Adaptation of the EPA Method | HI95747-01 Reagents for 100 tests HI95747-03 Reagents for 300 tests |
| Copper High Range | 0.00 to 5.00 mg/L (as Cu ²⁺) | 0.01 mg/L | ±0.02 mg/L ±4% of reading at 25 °C | 575 nm | Adaptation of the EPA Method | HI93702-01 Reagents for 100 tests HI93702-03 Reagents for 300 tests |
| Hydrazine | 0 to 400 µg/L (as N ₂ H ₄) | 1 µg/L | ±4% of full scale reading at 25 °C | 466 nm | Adaptation of the ASTM Manual of Water and Environmental Technology, Method D1385, p-Dimethylaminobenzaldehyde Method | HI93704-01 Reagents for 100 tests HI93704-03 Reagents for 300 tests |
| Iron Low Range | 0.000 to 1.600 mg/L (as Fe) | 0.001 mg/L | ±0.010 mg/L ±8% of reading at 25 °C | 575 nm | Adaptation of the TPTZ Method | HI93746-01 Reagents for 50 tests HI93746-03 Reagents for 150 tests |
| Iron High Range | 0.00 to 5.00 mg/L (as Fe) | 0.01 mg/L | ±0.04 mg/L ±2% 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 | HI93721-01 Reagents for 100 tests HI93721-03 Reagents for 300 tests |
| Iron (II) | 0.00 to 6.00 mg/L (as Fe ²⁺) | 0.01 mg/L | ±0.10 mg/L ±2% 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 | HI96776-01 Reagents for 100 tests HI96776-03 Reagents for 300 tests |
| Molybdenum | 0.0 to 40.0 mg/L (as Mo ⁶⁺) | 0.1 mg/L | ±0.3 mg/L ±5% of reading at 25 °C | 420 nm | Adaptation of the Mercaptoacetic Acid Method | HI93730-01 Reagents for 100 tests HI93730-03 Reagents for 300 tests |
| Nitrate | 0.0 to 30.0 mg/L (as NO ₃ ⁻ -N) | 0.1 mg/L | ±0.5 mg/L ±10% of reading at 25 °C | 525 nm | Adaptation of the Cadmium Reduction Method | HI93728-01 Reagents for 100 tests HI93728-03 Reagents for 300 tests |
| 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 | Adaptation of the EPA Diazotization Method 354.1 | HI93707-01 Reagents for 100 tests HI93707-03 Reagents for 300 tests |
| Nitrite High Range | 0 to 150 mg/L (as NO ₂ ⁻) | 1 mg/L | ±4 mg/L ±4% of reading at 25 °C | 575 nm | Adaptation of the Ferrous Sulfate Method | HI93708-01 Reagents for 100 tests HI93708-03 Reagents for 300 tests |
| Oxygen, Dissolved | 0.0 to 10.0 mg/L (as O ₂) | 0.1 mg/L | ±0.4 mg/L ±3% of reading at 25 °C | 420 nm | Adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th Edition, Azide Modified Winkler Method | HI93732-01 Reagents for 100 tests HI93732-03 Reagents for 300 tests |
| Oxygen Scavengers (Carbohydrazide) | 0.00 to 1.50 mg/L (as Carbohydrazide) | 0.01 mg/L | ±0.02 mg/L ±3% of reading at 25 °C | 575 nm | Adaptation of the Iron Reduction Method | HI96773-01 Reagents for 50 tests HI96773-03 Reagents for 150 tests |
| Oxygen Scavengers (Diethylhydroxylamine) (DEHA) | 0 to 1000 µg/L (as DEHA) | 1 µg/L | ±5 µg/L ±5% of reading at 25 °C | 575 nm | Adaptation of the Iron Reduction Method | HI96773-01 Reagents for 50 tests HI96773-03 Reagents for 150 tests |
| Oxygen Scavengers (Hydroquinone) | 0.00 to 2.50 mg/L (as Hydroquinone) | 0.01 mg/L | ±0.04 mg/L ±3% of reading at 25 °C | 575 nm | Adaptation of Iron Reduction Method | HI96773-01 Reagents for 50 tests HI96773-03 Reagents for 150 tests |
| Oxygen Scavengers (Iso-ascorbic Acid) | 0.00 to 4.50 mg/L (as Iso-Ascorbic Acid) | 0.01 mg/L | ±0.03 mg/L ±3% of reading at 25 °C | 575 nm | Adaptation of the Iron Reduction Method | HI96773-01 Reagents for 50 tests HI96773-03 Reagents for 150 tests |
| pH | 6.5 to 8.5 pH | 0.1 pH | ±0.1 pH at 25 °C | 525 nm | Adaptation of the Phenol Red Method | HI93710-01 Reagents for 100 pH tests HI93710-03 Reagents for 300 pH tests |
| Phosphate Low Range | 0.00 to 2.50 mg/L (as PO ₄ ³⁻) | 0.01 mg/L | ±0.04 mg/L ±4% of reading at 25 °C | 610 nm | Adaptation of the Ascorbic Acid Method | HI93713-01 Reagents for 100 tests HI93713-03 Reagents for 300 tests |
| Phosphate High Range | 0.0 to 30.0 mg/L (as PO ₄ ³⁻) | 0.1 mg/L | ±1.0 mg/L ±4% of reading at 25 °C | 525 nm | Adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th Edition, Amino Acid Method | HI93717-01 Reagents for 100 tests HI93717-03 Reagents for 300 tests |
| Silica Low Range | 0.00 to 2.00 mg/L (as SiO ₂) | 0.01 mg/L | ±0.03 mg/L ±3% of reading at 25 °C | 610 nm | Adaptation of the ASTM Manual of Water and Environmental Technology, D859, Heteropoly Molybdenum Blue Method | HI93705-01 Reagents for 100 tests HI93705-03 Reagents for 300 tests |
| Silica High Range | 0 to 200 mg/L (as SiO ₂) | 1 mg/L | ±1 mg/L ±5% of reading at 25 °C | 466 nm | Adaptation of the EPA Method 370.1 for Drinking, Surface and Saline Waters, Domestic and Industrial Wastes and Standard Method 4500-SiO ₂ | HI96770-01 Reagents for 100 tests HI96770-03 Reagents for 300 tests |
| Zinc | 0.00 to 3.00 mg/L (as Zn) | 0.01 mg/L | ±0.03 mg/L ±3% of reading at 25 °C | 575 nm | Adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th Edition, Zincon Method | HI93731-01 Reagents for 100 tests HI93731-03 Reagents for 300 tests |
| Ordering Information | HI83305-01 (115V) and HI83305-02 (230V) is supplied with sample cuvette (4 pcs.), sample cuvette cap (4 pcs.), cloth for wiping cuvettes, scissors, USB cable, 5 Vdc power adapter, 60 mL glass bottle, instrument quality certificate, and instruction manual. | | | | | |
| Standards | HI83305-11 CAL Check Cuvette Kit for HI83305 | | | | | |