

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 30 different methods. This photometer features an innovative optical system that uses LEDs, 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.

Specially designed for use with boilers and cooling towers, the HI83305 is a comprehensive way to maintain precise water conditions in 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 against 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



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
- **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



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- **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



Parameter	Range	Resolution	Accuracy	LED (λ nm) with Narrow Band Interference Filter	Method
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	aluminon
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 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
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	DPD
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	chlorophenol red
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
Chromium(VI) Low Range	0 to 300 µg/L (as Cr ⁶⁺)	1 µg/L	±1 µg/L ±4% of reading at 25 °C	@ 525 nm	diphenylcarbohydrazide
Chromium(VI) High Range	0 to 1000 µg/L (as Cr ⁶⁺)	1 µg/L	±5 µg/L ±4% of reading at 25 °C	@ 525 nm	diphenylcarbohydrazide
Copper Low Range	0.000 to 1.500 mg/L (as Cu ²⁺)	0.001 mg/L	±0.01 mg/L ±5% of reading at 25 °C	@ 575 nm	bicinchoninate
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	bicinchoninate
Hydrazine	0 to 400 µg/L (as N ₂ H ₄)	1 µg/L	±4% of full scale reading at 25 °C	@ 466 nm	p-Dimethylaminobenzaldehyde
Iron Low Range	0.000 to 1.600 mg/L (as Fe)	0.001 mg/L	±0.01 mg/L ±8% of reading at 25 °C	@ 575 nm	TPTZ
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	phenanthroline
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	mercaptoacetic acid
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	cadmium reduction
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
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	Winkler
Oxygen Scavengers	0.00 to 1.50 mg/L (as Carbohydrazide)	0.01 mg/L	±5 µg/L ±5% of reading at 25 °C	@ 575 nm	iron reduction
Oxygen Scavengers	0 to 1000 µg/L (as DEHA)	1 µg/L	±5 µg/L ±5% of reading at 25 °C	@ 575 nm	iron reduction
Oxygen Scavengers	0.00 to 2.50 mg/L (as Hydroquinone)	0.01 mg/L	±5 µg/L ±5% of reading at 25 °C	@ 575 nm	iron reduction
Oxygen Scavengers	0.00 to 4.50 mg/L (as Iso-ascorbic acid)	0.01 mg/L	±5 µg/L ±5% of reading at 25 °C	@ 575 nm	iron reduction
pH	6.5 to 8.5 pH	0.1 pH	±0.1 pH at 25 °C	@ 525 nm	phenol red
Phosphate Low Range	0.00 to 2.50 mg/L (ppm)	0.01 mg/L	±0.04 mg/L ±4% of reading at 25 °C	@ 610 nm	ascorbic acid
Phosphate High Range	0.0 to 30.0 mg/L (as PO ₄ ³⁻)	0.1 mg/L	±1 mg/L ±4% of reading at 25 °C	@ 525 nm	amino acid
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	heteropoly blue
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	molybdosilicate
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	zinccon

Ordering Information

HI83305-01 (115V) and **HI83305-02** (230V) is supplied with sample cuvettes and caps (4 ea.), cloth for wiping cuvettes, USB to micro USB cable connector, power adapter and instruction manual.

Standards

HI83305-11 CAL Check Cuvette Kit for HI83305