



NEW

# Multiparameter Photometers

with Advanced Optics and pH Meter



170 Shields Court Unit 2  
Markham, ON L3R 9T5  
TEL: (905) 475-5880 ext. 226  
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# Multiparameter Photometers

The HI83300 family of multiparameter photometers features nine models to cover a wide variety of applications. These meters are compact and versatile making them ideal for both benchtop or portable operation.

- Improved optical system
- Smart electrode input for pH measurements
- CAL Check:
  - Confirm meter functionality using certified CAL Check cuvettes
- Dual purpose micro USB for power and data transfer
- Export data to a USB flash drive
- Li-polymer rechargeable battery lasts for 500 measurements or 50 hours of pH measurement
- Absorbance mode
- User and sample name entry
- GLP features
- Auto-off
- Backlit LCD

## Nine Models Available

<b>HI83300</b>	Multiparameter Photometer
<b>HI83399</b>	Multiparameter Photometer with COD
<b>HI83303</b>	Aquaculture Photometer
<b>HI83305</b>	Boiler and Cooling Tower Photometer
<b>HI83306</b>	Environmental Analysis Photometer
<b>HI83308</b>	Water Conditioning Photometer
<b>HI83314</b>	Wastewater Treatment Photometer
<b>HI83325</b>	Nutrient Analysis Photometer
<b>HI83326</b>	Pool and Spa Photometer



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## Connectivity



### ① pH Connectivity

Any of our digital pH electrodes can be connected to the HI83300 family by a 3.5 mm input. Plugging in an electrode has never been easier; there are no alignment issues or broken pins. Simply connect the electrode and start taking measurements.

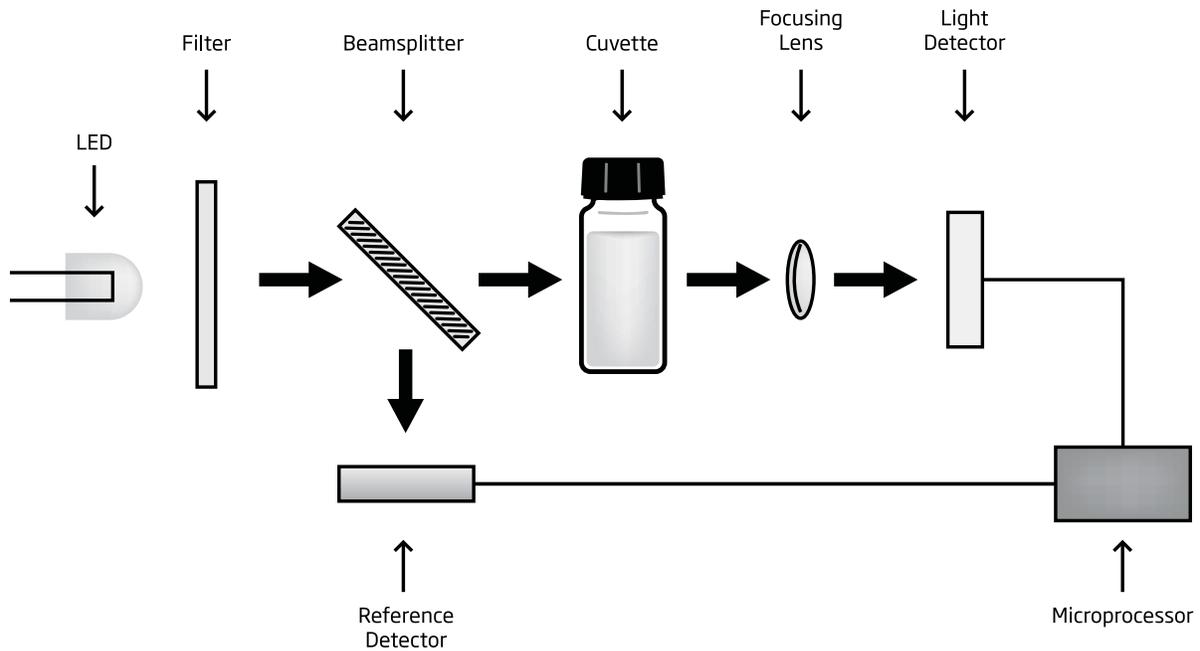
### ② Dual Power Supply

What makes the HI83300 family such versatile meters is their ability to be used as a portable or benchtop meter. Equipped with a rechargeable lithium ion battery, these meters can easily be brought on the production room floor or taken for measurements on the move. This long-lasting

battery lasts up to 500 photometer measurements or 50 hours of continuous pH measurements. To further preserve battery life, the auto-off feature automatically shuts off the meter after 15 minutes of inactivity. If being used on a benchtop, a power supply can be plugged into the micro USB port at the back of the meter.

### ② ③ USB Connectivity

Both a USB and micro USB port are located on the meters. Each of these ports can be used to transfer data via flash drive or direct connection to a PC or MAC. Data is transferred as CSV files for easy processing and widespread compatibility.



### Improved Optical System:

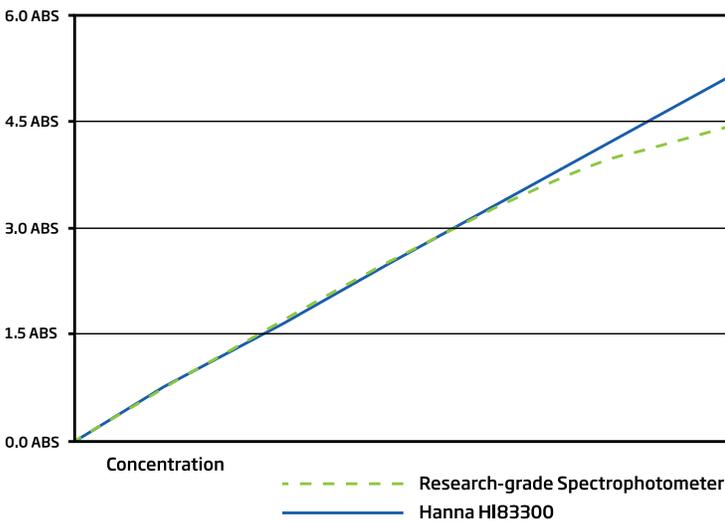
The internal reference system of the HI83300 photometer family compensates for any drifts due to power fluctuations or ambient temperature changes. Now you can rely on a stable source of light between your blank (zero) measurement and sample measurement.

LED light sources offer superior performance compared to tungsten lamps. LEDs have a much higher luminous efficiency, providing more light while using less power. They also produce little heat, which could otherwise affect electronic stability. LEDs are available in a wide array of wavelengths, whereas tungsten lamps have poor blue/violet light output.

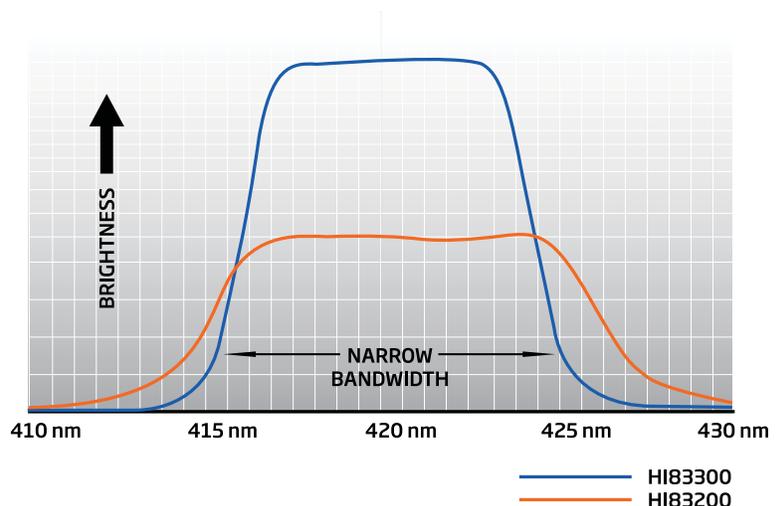
Improved optical filters ensure greater wavelength accuracy and allow a brighter, stronger signal to be received. The end result is higher measurement stability and less wavelength error.

A focusing lens collects all of the light that exits the cuvette, eliminating errors from cuvette imperfections and scratches. Indexing the cuvette position is no longer necessary.

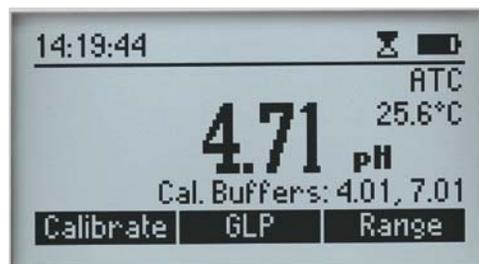
- Reference detector for reduced drift
- Focusing lens reduces any error from cuvette imperfections, eliminating the need to index the cuvette



Better linearity than research-grade spectrophotometers



Improved optical filters – higher wavelength accuracy and light throughput



### pH Measurement

The HI83300 family offers the ability to connect a digital pH electrode. Users can connect any sensor from our extensive line of digital pH electrodes. Whether a user requires a glass or plastic body, a spheric or conic tip shape, or the ability for safe use with food samples, our digital electrode offering is suitable for nearly everyone.

Each of our digital pH electrodes has an integrated temperature sensor to ensure all measurements are automatically compensated for variations in temperature. In addition, a built-in microchip is housed in the electrode that stores calibration information such as date, time, calibration values, offset, and slope characteristics. When the electrode is connected, this calibration information is transferred to the meter, allowing users to swap calibrated pH electrodes without having to recalibrate.

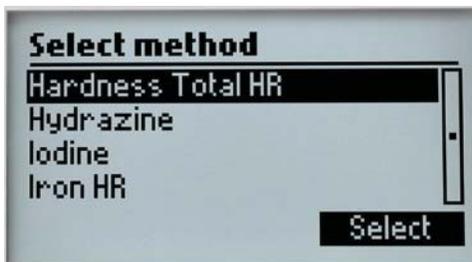


### Large Cuvettes

The sample cell of these meters fits a round, glass cuvette with a 25 mm path length. The relatively long path length of the sample cuvette allows the light to pass through more of the sample solution, ensuring accurate measurements even in low absorbance samples. This cuvette size also provides a larger opening, making it easier for users to dispense ready-made liquid or powder reagents into the sample.



An affixed, light-blocking cover panel closes over the sample cell, reducing stray light from affecting any measurement readings.



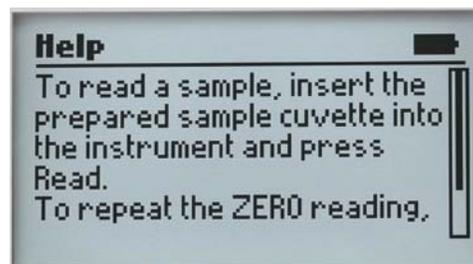
### Photometer Mode

Users can access the menu of measurement methods with the simple press of a button. Low, medium, and high range methods of certain parameters are available for users to ensure high accuracy readings. Each method is assigned a unit of measure, but users can easily convert the chemical form to obtain a more meaningful reading. The reaction time is of key importance when performing colorimetric measurements, which is why the built-in timer of the HI83300 family is an ideal feature. The countdown timer displays the time remaining until a measurement will be taken, ensuring consistent results between measurements and users.



### Absorbance Mode

The HI83300 family allows for alternate reporting of absorbance when it is required, as well as a convenient way for users to develop their own calibration curves and measure samples with customized chemistries at one of the five available wavelengths. The HI83300 family can also serve as an easy to use meter to foster educational understanding of the basic principles of spectrophotometry.



### Intuitive Display

The HI83300 family is designed with a backlit, graphic LCD. With virtual keys, a battery status indicator, and practical error messages, users will find the meter interface intuitive and easy to read. The on-screen guide provides information relating to the current meter operation, and can be used at any stage in the setup or measurement process to show contextual help.



### Data Management

The HI83300 family can store up to 1,000 combined photometer and direct pH readings, which can be logged by pressing the LOG key on the face of the meter. After a user chooses to log a reading, they are prompted to input a user and sample ID. Names can quickly be programmed into the logged reading with the compact and responsive alphanumeric keypad located on the meter face. Readings are logged along with comprehensive GLP (Good Laboratory Practice) information such as date, time, CAL Check standard value, and user and sample ID.



### Cuvette Adapter

The HI83399 (COD) and HI83314 (wastewater treatment) multiparameter photometers include a cuvette adapter.

# Parameter Chart

Parameter	Range	Method	H183300	H183399	H183303	H183305	H183306	H183308	H183314	H183325	H183326
Alkalinity	0 to 500 mg/L (as CaCO <sub>3</sub> )	Colorimetric method	•	•	•						•
Alkalinity, Marine	0 to 300 mg/L (as CaCO <sub>3</sub> )	Colorimetric method	•	•	•						
Aluminum	0.00 to 1.00 mg/L (as Al <sup>3+</sup> )	aluminon	•	•		•					
Ammonia Low Range	0.00 to 3.00 mg/L (as NH <sub>3</sub> -N)	Nessler	•	•	•		•	•	•	•	
Ammonia Low Range (16 mm vial)	0.00 to 3.00 mg/L (as NH <sub>3</sub> -N)	Nessler	•	•					•		
Ammonia Medium Range	0.00 to 10.00 mg/L (as NH <sub>3</sub> -N)	Nessler	•	•	•		•	•	•	•	
Ammonia High Range	0.0 to 100.0 mg/L (as NH <sub>3</sub> -N)	Nessler	•	•	•		•	•	•	•	
Ammonia High Range (16 mm vial)	0.0 to 100.0 mg/L (as NH <sub>3</sub> -N)	Nessler	•	•					•		
Bromine	0.00 to 8.00 mg/L (as Br <sub>2</sub> )	DPD	•	•		•					•
Calcium	0 to 400 mg/L (as Ca <sup>2+</sup> )	oxalate	•	•	•						•
Calcium, Marine	200 to 600 mg/L (as Ca <sup>2+</sup> )	zincon	•	•	•						
Chloride	0.0 to 20.0 mg/L (as Cl <sup>-</sup> )	mercury (II) thiocyanate	•	•							
Chlorine Dioxide	0.00 to 2.00 mg/L (as ClO <sub>2</sub> )	chlorophenol red	•	•		•					
Chlorine, Free	0.00 to 5.00 mg/L (as Cl <sub>2</sub> )	DPD	•	•	•	•	•	•	•		•
Chlorine, Free Ultra Low Range	0.000 to 0.500 mg/L (as Cl <sub>2</sub> )	DPD	•	•							
Chlorine, Total	0.00 to 5.00 mg/L (as Cl <sup>-</sup> )	DPD	•	•	•	•	•	•	•		•
Chlorine, Total Ultra Low Range	0.000 to 0.500 mg/L (as Cl <sub>2</sub> )	DPD	•	•							
Chlorine, Total Ultra High Range	0 to 500 mg/L (as Cl <sub>2</sub> )	iodometric	•	•							
Chromium(VI) Low Range	0 to 300 µg/L (as Cr <sup>6+</sup> )	diphenylcarbohydrazide	•	•		•	•				
Chromium(VI) High Range	0 to 1000 µg/L (as Cr <sup>6+</sup> )	diphenylcarbohydrazide	•	•		•	•				
COD Low Range (16 mm vial)	0 to 150 mg/L (as O <sub>2</sub> )	dichromate mercury-free	•	•						•	
COD Medium Range (16 mm vial)	0 to 1500 mg/L (as O <sub>2</sub> )	dichromate mercury-free	•	•						•	
COD HR (16 mm vial)	0 to 15000 mg/L (as O <sub>2</sub> )	dichromate	•	•						•	
Color of Water	0 to 500 PCU (Platinum Cobalt Units)	colorimetric platinum cobalt	•	•			•				
Copper Low Range	0.000 to 1.500 mg/L (as Cu <sup>2+</sup> )	bicinchoninate	•	•	•	•	•	•			
Copper High Range	0.00 to 5.00 mg/L (as Cu <sup>2+</sup> )	bicinchoninate	•	•	•	•	•	•			•
Cyanuric Acid	0 to 80 mg/L (as CYA)	turbidimetric	•	•			•				•
Fluoride Low Range	0.00 to 2.00 mg/L (as F <sup>-</sup> )	SPADNS	•	•				•			
Fluoride High Range	0.0 to 20.0 mg/L (as F <sup>-</sup> )	SPADNS	•	•							
Hardness, Calcium	0.00 to 2.70 mg/L (as CaCO <sub>3</sub> )	calmagite	•	•							•
Hardness, Magnesium	0.00 to 2.00 mg/L (ppm) (as CaCO <sub>3</sub> )	EDTA colorimetric	•	•							
Hardness, Total Low Range	0 to 250 mg/L (as CaCO <sub>3</sub> )	calmagite	•	•							
Hardness, Total Medium Range	200 to 500 mg/L (as CaCO <sub>3</sub> )	calmagite	•	•							
Hardness, Total High Range	400 to 750 mg/L (as CaCO <sub>3</sub> )	calmagite	•	•							
Hydrazine	0 to 400 µg/L (as N <sub>2</sub> H <sub>4</sub> )	p-Dimethylaminobenzaldehyde	•	•		•					
Iodine	0.0 to 12.5 mg/L (as I <sub>2</sub> )	DPD	•	•							
Iron Low Range	0.000 to 1.600 mg/L (as Fe)	TPTZ	•	•		•		•			
Iron High Range	0.00 to 5.00 mg/L (as Fe)	phenanthroline	•	•		•		•			•
Magnesium	0 to 150 mg/L (as Mg <sup>2+</sup> )	calmagite	•	•							•
Manganese Low Range	0 to 300 µg/L (as Mn)	PAN	•	•				•			
Manganese High Range	0.0 to 20.0 mg/L (as Mn)	periodate	•	•				•			
Molybdenum	0.0 to 40.0 mg/L (as Mo <sup>6+</sup> )	mercaptoacetic acid	•	•		•	•	•			
Nickel Low Range	0.000 to 1.000 mg/L (as Ni)	PAN	•	•			•	•			
Nickel High Range	0.00 to 7.00 g/L (as Ni)	photometric	•	•			•	•			
Nitrate	0.0 to 30.0 mg/L (as NO <sub>3</sub> <sup>-</sup> -N)	cadmium reduction	•	•	•	•	•	•		•	•
Nitrate (16 mm vial)	0.0 to 30.0 mg/L (as NO <sub>3</sub> <sup>-</sup> -N)	chromotropic acid	•	•					•		
Nitrite Ultra Low Range, Marine	0 to 200 µg/L (as NO <sub>2</sub> <sup>-</sup> -N)	diazotization	•	•	•						
Nitrite Low Range	0 to 600 µg/L (as NO <sub>2</sub> <sup>-</sup> -N)	diazotization	•	•	•	•					
Nitrite High Range	0 to 150 mg/L (as NO <sub>2</sub> <sup>-</sup> -N)	ferrous sulfate	•	•	•	•	•	•		•	
Nitrogen, Total Low Range (16 mm vial)	0.0 to 25.0 mg/L (as NO <sub>3</sub> <sup>-</sup> -N)	chromotropic acid	•	•						•	
Nitrogen, Total High Range (16 mm vial)	0 to 150 mg/L (as N)	chromotropic acid	•	•						•	
Oxygen, Dissolved	0.0 to 10.0 mg/L (as O <sub>2</sub> )	Winkler	•	•	•	•	•	•			
Oxygen Scavengers	0.00 to 1.50 mg/L (as Carbohydrazide)	iron reduction	•	•		•					
Oxygen Scavengers	0 to 1000 µg/L (as DEHA)	iron reduction	•	•		•					
Oxygen Scavengers	0.00 to 2.50 mg/L (as Hydroquinone)	iron reduction	•	•		•					
Oxygen Scavengers	0.00 to 4.50 mg/L (as Iso-ascorbic acid)	iron reduction	•	•		•					
Ozone	0.00 to 2.00 mg/L (as O <sub>3</sub> )	DPD	•	•							•
pH	6.5 to 8.5 pH	phenol red	•	•	•	•	•	•			•
Phosphate Ultra Low Range, Marine	0 to 200 µg/L (as P)	ascorbic acid	•	•	•						
Phosphate Low Range	0.00 to 2.50 mg/L (ppm)	ascorbic acid	•	•	•	•	•	•			•
Phosphate High Range	0.0 to 30.0 mg/L (as PO <sub>4</sub> <sup>3-</sup> )	amino acid	•	•	•	•	•	•			•
Phosphorus Reactive Low Range (16 mm vial)	0.00 to 1.60 mg/L (as P)	ascorbic acid	•	•						•	
Phosphorus Reactive High Range (16 mm vial)	0.0 to 32.6 mg/L (as P)	vanadomolybdophosphoric acid	•	•						•	
Phosphorus Acid Hydrolyzable (16 mm vial)	0 to 1.6 mg/L (ppm) (as P)	ascorbic acid	•	•						•	
Phosphorus, Total Low Range (16 mm vial)	0.00 to 1.15 mg/L (as P)	ascorbic acid	•	•						•	
Phosphorus, Total High Range (16 mm vial)	0.0 to 32.6 mg/L (as P)	vanadomolybdophosphoric acid	•	•						•	
Potassium	0.0 to 20.0 mg/L (as K)	turbidimetric tetraphenylborate	•	•							•
Silica Low Range	0.00 to 2.00 mg/L (as SiO <sub>2</sub> )	heteropoly blue	•	•		•	•	•			
Silica High range	0 to 200 mg/L (as SiO <sub>2</sub> )	molybdosilicate	•	•		•					
Silver	0.000 to 1.000 mg/L (as Ag)	PAN	•	•			•	•			
Sulfate	0 to 150 mg/L (as SO <sub>4</sub> <sup>2-</sup> )	turbidimetric	•	•							•
Surfactants, Anionic	0.00 to 3.50 mg/L (as SDBS)	methylene blue	•	•							
Zinc	0.00 to 3.00 mg/L (as Zn)	zincon	•	•		•	•	•			



### General Specifications for all Models

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)
	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-B connector 3.7 VDC Li-polymer rechargeable battery, non-serviceable
	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.)

### Reagents

- HI83300-11** CAL Check Cuvette Kit for HI83300
- HI83303-11** CAL Check Cuvette Kit for HI83303
- HI83305-11** CAL Check Cuvette Kit for HI83305
- HI83306-11** CAL Check Cuvette Kit for HI83306
- HI83308-11** CAL Check Cuvette Kit for HI83308
- HI83314-11** CAL Check Cuvette Kit for HI83314
- HI83325-11** CAL Check Cuvette Kit for HI83325
- HI83326-11** CAL Check Cuvette Kit for HI83326
- HI83399-11** CAL Check Cuvette Kit for HI83399

### Accessories

- HI83300-100** sample preparation kit consisting of activated carbon for 50 testst, 2L demineralizer bottle, 100 mL graduated beaker with caps (10), 3 mL pipette, 60 mL syringe, 5 mL syringe, graduated cylinder, spoon, funnel, paper filters (100)

- HI72083300** carrying case for HI83300 family
- HI76404A** electrode holder for HI83300 family
- HI11310** digital combination pH electrode
- HI75110/230** USB power supply
- HI920015** USB to micro USB cable connector
- HI731318** cuvette cleaning cloth (4)
- HI731331** cuvette (4)
- HI731335N** caps for cuvette (4)
- HI740034P** beaker cap for 100 mL plastic beaker (10)
- HI740036P** beaker, plastic 100 mL (10)
- HI740224** plastic beaker 170 mL (6)
- HI740225** 60 mL graduated syringe
- HI740226** 5 mL graduated syringe
- HI93703-55** activated carbon for 50 tests

### Ordering Information

**HI83300-01** (115V) and **HI83300-02** (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.

**HI83303-01** (115V) and **HI83303-02** (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.

**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.

**HI83306-01** (115V) and **HI83306-02** (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.

**HI83308-01** (115V) and **HI83308-02** (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.

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

**HI83325-01** (115V) and **HI83325-02** (230V) is supplied with sample cuvettes and caps (4 ea.), activated carbon for 50 testst, 2L demineralizer bottle, 100 mL graduated beaker with caps (10), 3 mL pipette, 60 mL syringe, 5 mL syringe, graduated cylinder, spoon, funnel, paper filters (100), cloth for wiping cuvettes, USB to micro USB cable connector, power adapter, instruction manual and carrying case.

**HI83326-01** (115V) and **HI83326-02** (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.

**HI83399-01** (115V) and **HI83399-02** (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.



\* Limits will be reduced to actual sensor limits

Hanna Instruments reserves the right to change or modify the design and/or specifications of its products at any time without notice.