

Multiparameter Photometers

with Advanced Optics and pH Meter



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

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







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

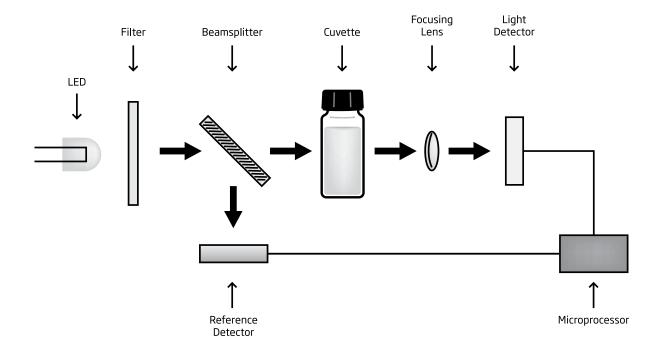
What makes the HI83300 family such versatile meters is their ability to be used as a portable or benchtop meter. Equipped with a rechargeable lithium ion battery, these meters can easily be brought on the production room floor or taken for measurements on the move. This long-lasting

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.

23 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:

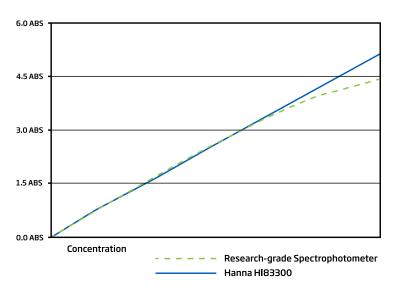
The internal reference system of the HI83300 photometer family compensates for any drifts due to power fluctuations or ambient temperature changes. Now you can rely on a stable source of light between your blank (zero) measurement and sample measurement.

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.

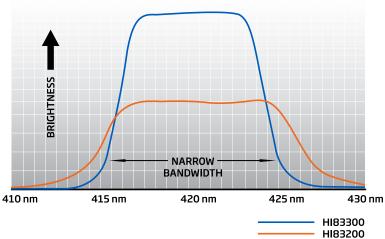
Improved optical filters ensure greater wavelength accuracy and allow a brighter, stronger signal to be received. The end result is higher measurement stability and less wavelength error.

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







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.

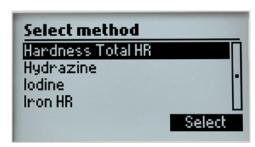


Large Cuvettes

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.



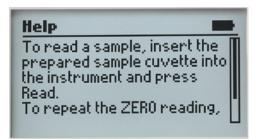
Photometer Mode

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.



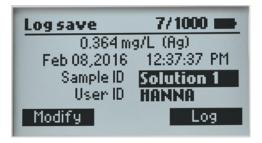
Absorbance Mode

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.

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Nickel High Range 0.000 to 1.000 mg/L (as Ni) PAN Nickel High Range 0.00 to 3.00 mg/L (as Nog-N) cadmium reduction Nitrate 0.00 to 3.00 mg/L (as Nog-N) chromotropic acid Nitrate (Inm wial) 0.10 to 3.00 mg/L (as Nog-N) chromotropic acid Nitrite Ultra Low Range, Marine 0 to 20.00 μg/L (as Nog-N) diazotization Nitrite High Range 0 to 150 mg/L (as Nog-N) ferrous sulfate Nitrogen, Total Low Range (16 mm vial) 0.01 to 250 mg/L (as Nog-N) chromotropic acid Nitrogen, Total High Range (16 mm vial) 0.01 to 250 mg/L (as Nog-N) chromotropic acid Oxygen, Dissolved 0.01 to 150 mg/L (as Carbohydrazide) iron reduction Oxygen Scavengers 0.01 to 150 mg/L (as Carbohydrazide) iron reduction Oxygen Scavengers 0.01 to 250 mg/L (as Hydroquinone) iron reduction Oxygen Scavengers 0.01 to 250 mg/L (as Hydroquinone) iron reduction Oxygen Scavengers 0.01 to 250 mg/L (as Ng) phenol red Phosphate Ultra Low Range, Marine 0.01 to 250 mg/L (as Ng) ascorbic acid Phosphate Ultra Low Range, Marine 0.1 to 20 mg/L (as Sp) ascorbic			•	:			•		•			
Nitrate (16 mm vial) O.0 to 30.0 mg/L (as NO5-N) cadmium reduction	•	= : :										
Nitrate (16 mm vial) 0.0 to 30.0 mg/L (as N05-N) chromotropic acid	Nickel High Range	= : :	photometric	•	٠			•	•			
Nitrite Ultra Low Range, Marine 0 to 200 µg/L (as N0;- N) diazotization		- · · · · · · · · · · · · · · · · · · ·		•	•	•	•	•	•		•	•
Nitrite Low Range 0 to 600 µg/L (as N02-N) diazotization	,	2 (3 ,	· ·		•					•		
Nitrogen, Total Liow Range (16 mm vial) 0.0 to 25.0 mg/L (as N0g-N) chromotropic acid . </td <td>5</td> <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	5				•							
Nitrogen, Total High Range (16 mm vial) 0 to 150 mg/L (as N) chromotropic acid	2 2	0 to 150 mg/L (as NO ₂ - N)	ferrous sulfate	•	•	•	•	•		•		
Oxygen, Dissolved 0.0 to 10.0 mg/L (as O₂) Winkler • • • • • • • • • • • • • • • • • • •	3 ,		•		•							
Oxygen Scavengers 0.00 to 1.50 mg/L (as Carbohydrazide) iron reduction .					•					•		
Oxygen Scavengers 0 to 1000 µg/L (as DEHA) iron reduction .		2 \ 1/		•	•		•					
Oxygen Scavengers 0.00 to 4.50 mg/L (as Iso-ascorbic acid) iron reduction 1 2 1 2 2 2 2 <		2 1 1		•	•		•					
Oxygen Scavengers acid) Iffor reduction ************************************	Oxygen Scavengers		iron reduction	•	•		•					
pH 6.5 to 8.5 pH phenol red * <td>Oxygen Scavengers</td> <td></td> <td>iron reduction</td> <td>•</td> <td>•</td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Oxygen Scavengers		iron reduction	•	•		•					
Phosphate Ultra Low Range, Marine 0 to 200 μg/L (as P) ascorbic acid • • • • • • • • • • • • • • • • • • •		2 , 3,		•	•							•
Phosphate Low Range 0.00 to 2.50 mg/L (ppm) ascorbic acid • • • • • • • • • • • • • • • • • • •	•		•	•	•	•	•	•	•			•
Phosphate High Range 0.0 to 30.0 mg/L (as PO½) amino 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) 0.0 to 1.5 mg/L (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 ₂) molybdosilicate • • • • Silica High range 0 to 200 mg/L (as SiO ₂) molybdosilicate • • • • Silver 0.000 to 1.000 mg/L (as SOg ²) PAN • • • • Sulfate 0 to 150 mg/L (as SDg ²) turbidimetric • • • • Sulfate 0.00 to 3.50 mg/L (as SDBS) methylene blue • • • •				•	•	•	•	•	•		•	
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 ₂) molybdosilicate • • • • Silica High range 0 to 200 mg/L (as SiO ₂) molybdosilicate • • • • Silver 0.000 to 1.000 mg/L (as SOg ²) PAN • • • • Sulfate 0 to 150 mg/L (as SDg ²) turbidimetric • • • • • Sulfate 0 to 150 mg/L (as SDg ²) turbidimetric • • • • • Sulfate 0 to 150 mg/L (as SDg ²) methylene blue • • • •		= : :			•					•		
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 ₂) heteropoly blue • • • Silica High range 0 to 200 mg/L (as SiO ₂) molybdosilicate • • • Silver 0.000 to 1.000 mg/L (as SQ ₂) PAN • • • Sulfate 0 to 150 mg/L (as SQ ₂) turbidimetric • • • • Surfactants, Anionic 0.00 to 3.50 mg/L (as SDBS) methylene blue • • • •					•					•		
Phosphorus, Total High Range (16 mm vial) 0.0 to 32.6 mg/L (as P) vanadomolybdophosphoric acid • <td></td> <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td>					•					•		
Potassium0.0 to 20.0 mg/L (as K)turbidimetric tetraphenylborate•••••Silica Low Range0.00 to 2.00 mg/L (as SiO2)heteropoly blue••••Silica High range0 to 200 mg/L (as SiO2)molybdosilicate••••Silver0.000 to 1.000 mg/L (as Ag)PAN••••Sulfate0 to 150 mg/L (as SD82)turbidimetric••••Surfactants, Anionic0.00 to 3.50 mg/L (as SDBS)methylene blue•••												
Silica High range 0 to 200 mg/L (as SiO $_2$)molybdosilicate•••Silver 0.000 to 1.000 mg/L (as Ag)PAN•••Sulfate 0 to 150 mg/L (as SDB $_2$)turbidimetric•••Surfactants, Anionic 0.00 to 3.50 mg/L (as SDBS)methylene blue•••					•							
Silver 0.000 to 1.000 mg/L (as Ag) PAN •		2 , 2,		•	٠		٠	٠	•			
Sulfate 0 to 150 mg/L (as SO ₄ ²) turbidimetric • • • Surfactants, Anionic 0.00 to 3.50 mg/L (as SDBS) methylene blue • •				•	•		•					
Surfactants, Anionic 0.00 to 3.50 mg/L (as SDBS) methylene blue • •								•	•			
		3 , , , ,		•	•							
	Zinc	0.00 to 3.00 mg/L (as Zn)	•	•	•		•	•	•			



General Specifications for all Models

Measurement Channels		5 x optical channels; 1 x digital electrode channel (pH measurement)					
	Range	0.000 to 4.000 Abs					
Absorbance	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 Temperature Additional Specifications	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)*					
	Range	-20 to 120°C (-4.0 to 248.0 °F)					
	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

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
HI83399-11 CAL Check Cuvette Kit for HI83399

HI83300-11 CAL Check Cuvette Kit for HI83300

Accessories

HI83300-100 sample preparation kit consisting of activated carbon for 50 testst, 2 L 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, 2 L 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.

