HI 9829



HI 9829

GPS Multiparameter Meter

pH/ORP/ISE, EC/TDS/Resistivity/Salinity/Seawater Specific Gravity, Turbidity, DO, Temperature and Atmospheric Pressure

With great products, come great results™

HANNA® instruments

an ISO 9001:2000 CERTIFIED COMPANY

features

HI 9829

GPS Multiparameter Meter

pH/ORP/ISE, EC/TDS/Resistivity/Salinity/Seawater Specific Gravity, Turbidity, DO, Temperature and Atmospheric Pressure

- Field replaceable ISO 7027 compliant turbidity sensor
- Ammonium, chloride and nitrate ISE's
- Logging from probe or meter
- Fully customizable instrument, probe, sensors and measurement specifications
- Display from 1 to 12 parameters with font dimension adjustment
- Field replaceable sensors
- pH/ORP or pH, four electrode EC and galvanic DO sensors
- Auto-recognition of all sensors
- Rugged probe with stainless steel tip has a diameter under 2" for wells and pipes
- Track measurement locations with GPS
- Fast Tracker™–Tag I.D. System simplifies periodic monitoring
- HI 9829 features a built-in barometer for DO compensation
- Quick or independent sensor calibration feature
- Measurement check eliminates erroneous readings
- Logged data can be displayed as graphs
- Graphic LCD with backlight
- USB for PC connectivity
- Good Laboratory Practice feature with last five calibrations recorded
- Meter accepts both alkaline and rechargeable batteries
- Waterproof protection for meter (IP67) and probes (IP 68)
- Intuitive configuration, measurement and dedicated HELP button



Rugged, waterproof and easy to use, the HI 9829 is the ideal meter for field measurements of lakes, rivers and seas. The HI 9829 displays 1 to 12 parameters simultaneously from up to 15 user selectable parameters.

Combined with one of the HI 76x9829 series probes, the HI 9829 can measure water quality parameters such as pH, ORP, conductivity, turbidity, temperature, ions ions ammonium, nitrate, chloride (NH_4^+, NO_3^-–N or Cl^-), dissolved oxygen concentration, resistivity, TDS, salinity, and seawater specific gravity. Atmospheric pressure is measured for DO compensation.

The HI 9829 with the GPS option incorporates a built-in GPS receiver and antenna that guarantees position accuracy. Measurements from specific locations are tracked with detailed coordinate information that can be viewed immediately on the display.

The HI 9829 features a graphic, backlit LCD that scales digits to fit up to 12 parameters and allows full configuration of each parameter measured along with an on-screen graphing capability.

The meter incorporates comprehensive GLP features and the transferring of data via USB connection. The HI 9829's HELP key displays context sensitive help. The alpha-numeric keypad offers a user friendly way to complete the input fields.

The Perfect Monitoring Tool

Water scientists and managers alike utilize data-collection programs as part of environmental monitoring. These programs are designed to reveal changes in water and the environment around it over time. Reliable, dependable measurements are required to monitor these changes and understand the contributions from seasonal fluctuations, weathering, as well as manmade pollution. The HI 7629829 or HI 7639829 intelligent autonomously logging probes can be left at the application site to autonomously log results without the aid of the HI 9829 or a PC. When it is time to retrieve the results the measurement data can be easily transferred to the HI 9829 or a PC using HI 929829 software.

HANNA instruments

With Great Products, Come Great Results™



HI 7609829
pH/ORP, Dissolved Oxygen, EC



HI 76198298
pH/ORP, Dissolved Oxygen, EC/Turbidity



HI 7629829
pH/ORP, Dissolved Oxygen, EC, Logging



HI 7639829
pH/ORP, Dissolved Oxygen, EC/Turbidity, Logging

Autonomously Logging probes

HI 7629829 and HI 7639829 multiparameter probes can autonomously monitor and log parameters without the need for the HI 9829.

Just connect the logging probe to the HI 9829 or a PC to retrieve the logged measurements.

SPECIFICATIONS		HI 7609829	HI 7619829	HI 7629829	HI 7639829
Default Configuration	Connector 1	pH/ORP			
	Connector 2	dissolved oxygen			
	Connector 3	EC	EC/Turbidity	EC	EC/Turbidity
Supported Configuration	Connector 1	pH, pH/ORP, ammonium, chloride, nitrate			
	Connector 2	dissolved oxygen			
	Connector 3	EC, EC/Turbidity			
Upgradeable		to HI 7619829, adding EC/turbidity sensor and long protective cap	–	to HI 7639829, adding EC/turbidity sensor and long protective cap	–
Temperature sensor		built-in			
Autonomous Logging		–	–	yes	yes
Logging on Probe		–	–	yes	yes
Logging Interval		–	–	1 second to 3 hours	
HI 9829 Interface		yes			
PC interface		yes, via USB			
Power Supply		via HI 9829, PC or external power supply		via alkaline or rechargeable C cell batteries, HI 9829, PC or external power supply	
Battery Life		–		up to 200 hours	
Waterproof Protection		IP68			



Sensors



Sensor replacement is quick and easy with screw type connectors and color coded sensors. The HI 9829 automatically recognizes sensor presence.

The HI 769829-2 galvanic DO sensor with its fast response time can be ready at a moment's notice. This probe features a replaceable membrane cap for easy maintenance.

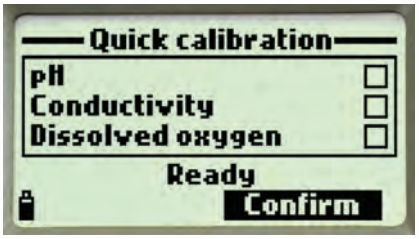
The HI 769829-3 4-electrode conductivity probe uses a polarographic measurement principle and ensures stable conductivity readings that are immune to polarization or surface coating. Absolute conductivity, temperature compensated conductivity, salinity, specific gravity and TDS determinations are possible with measurements from this sensor.

The new HI 7609829-4 EC/turbidity sensor is field replaceable and offers readings from both parameters at the same time.

All potentiometric sensors feature a double junction design and are gel filled to increase resistance to contamination. An ISE sensor can be used in place of the pH sensor and is automatically recognized. pH in mV readings are also displayed –ideal for troubleshooting.

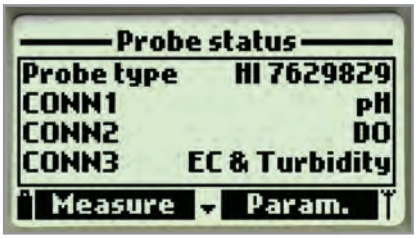
Field Ready

For field calibration, our quick calibration solution allows users to standardize pH and conductivity with one calibration solution.



Quick Calibration

Simply screw the calibration beaker filled with HI 9828-25 solution onto the probe, select "Quick calibration" from the menu and press OK. Individual calibration may also be performed using multiple calibration points.



Auto-sensor recognition

In this example, the HI 9829 is identifying a chloride, dissolved oxygen and turbidity/ EC sensor

A Great Combination

The use of HANNA's microprocessor based multiparameter intelligent probes and new HI 9829 meter will provide reliable data collection that can lead to an improved scientific understanding of the interconnections between natural, chemical and geological processes and man made pollution to effectively evaluate applications for waste-discharge permits, remediate contaminated sites and to protect or restore biological resources.

The HI 76x9829 probes feature field replaceable sensors with auto-recognition. The sensors are housed with the probe electronics in a rugged housing with a water-tight cable connection. The base probe model permits the measurement of conductivity, pH/ORP (or an ISE), and dissolved oxygen. Other models permit turbidity and logging.

The probes are available with a choice of cable lengths such as 4 m, 10 m and 20 m (13, 32, 66') that utilize a DIN connection to interface with the meter. The probes are supplied with a maintenance kit. These new probes can be connected directly to a PC with the HI 9828 PC adapter, and the HI 929829 PC software to communicate directly with the probes.

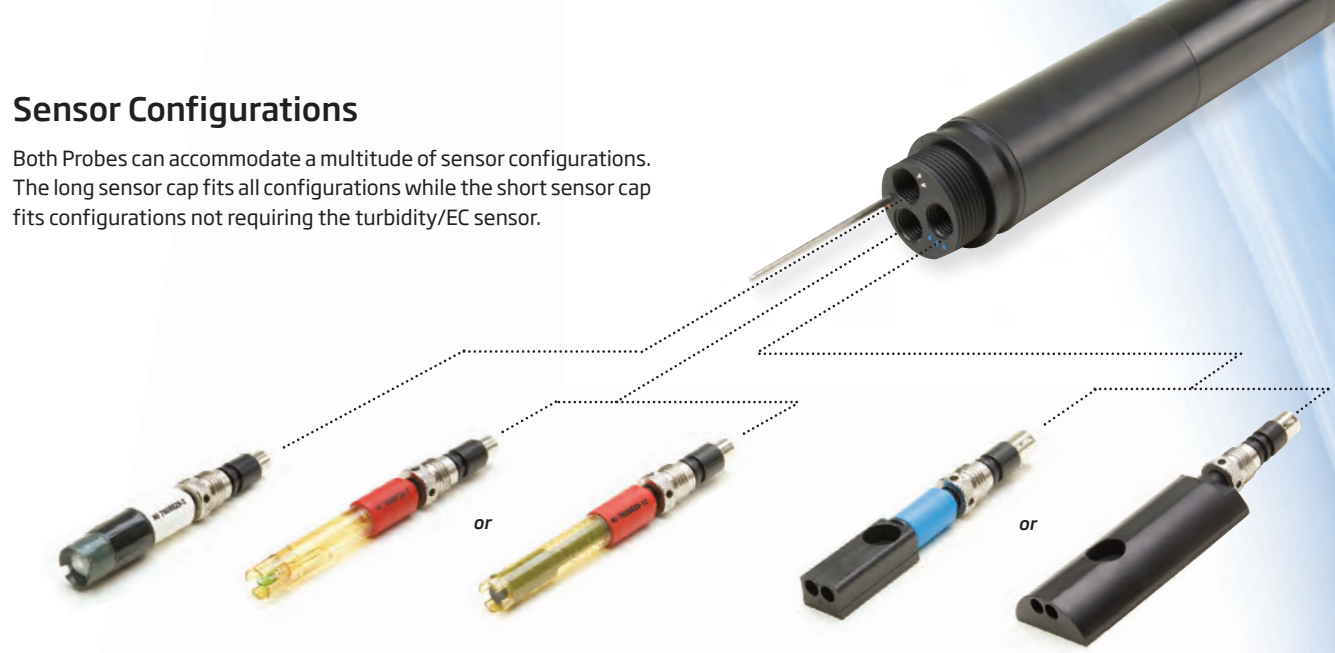
Reliable temperature measurements are a critical parameter of aquatic system monitoring. Temperature and temperature changes due to water releases can affect the ability of water to hold oxygen as well as the ability of organisms to resist certain pollutants. The intelligent probes incorporate an accurate thermistor that changes predictably with temperature changes. Accurate temperature reading in degrees Celsius, Kelvin or Fahrenheit are displayed and utilized by other detectors for temperature correction.

The pH or pH/ORP sensors incorporate the technology that has made HANNA so successful as a pH manufacturer. Reliable pH measurements are one of the most important indicators of water chemistry indicating the relative amount of free hydrogen and hydroxyl ions in the water. HANNA's pH sensors utilize a resilient PEI body to protect them from solid particulates found water samples. Consistency and quality are the hallmarks of these sensors. Our differential measurement system further enhances the measurement reliability providing temperature corrected pH.

A choice of 3 ion selective electrodes is available for constant reporting of common surface water contaminants. Nitrate,

Sensor Configurations

Both Probes can accommodate a multitude of sensor configurations. The long sensor cap fits all configurations while the short sensor cap fits configurations not requiring the turbidity/EC sensor.



Dissolved Oxygen
HI 7609829-2 DO

pH
HI 7609829-0 pH
HI 7609829-1 pH/ORP

ISE
HI 7609829-10 Ammonium ISE
HI 7609829-11 Chloride ISE
HI 7609829-12 Nitrate ISE

Conductivity
HI 7609829-3 EC

Conductivity and Turbidity
HI 7609829-4 EC/Turbidity



Short cap for probes without EC/turbidity sensor

Long cap for probes with EC/turbidity sensor

ammonium and chloride are available. Each ISE is a combination electrode incorporating an extremely constant reference spiral; all potentionmetric probes feature a double junction and solid gelled reference design. By utilizing conductivity, the HI 9829 meter can convert ion activity measurements to concentration units.

The HANNA 4-electrode conductivity probe using the polarographic measurement principal ensures stable conductivity readings. Electrolytic conductivity measures of the ability of water to conduct an electrical current. It is highly dependent on the amount of dissolved solids (such as salt) in the water. Absolute conductivity, temperature corrected conductivity, salinity, specific gravity and water hardness (TDS) determinations are possible with measurements from this sensor.

The oxygen dissolved in lakes, rivers, and oceans is crucial for the organisms and creatures living in it. If dissolved oxygen concentrations drop below normal levels in water bodies, the water quality degrades and the organisms begin to die off. The galvanic sensor does not require long polarization times so is ready for measurement at a moment's notice. Our sensor also utilizes a replaceable cap design for ease of maintenance and a safe non-toxic electrolyte. DO readings are compensated for the effects of temperature (using the probes built-in temperature sensor) and atmospheric pressure (using the HI 9829's internal atmospheric pressure sensor).

The new HANNA turbidity sensor is a replaceable design for instantaneous turbidity reading that conforms to ISO 7027 standards. It provides measurements from 0.0 to 50.0 FNU; and 50 to 1000 FNU. Turbidity is the amount of particulate matter that is suspended in water. Turbidity measures the scattering effect that suspended solids have on light: the higher the intensity of scattered light, the higher the turbidity. Material that causes water to be turbid include: clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, plankton and microscopic organisms.

Probes with the logging function have a logging memory that allows storage of up to 140,000 individual samples or 12,000 complete sample data sets with date and time stamp thus permitting up to a 35 day deployment with all channels logging at 10 minute intervals. Logging probes work with either rechargeable or standard batteries

The probe incorporates a temperature sensor for temperature compensation of all parameters.

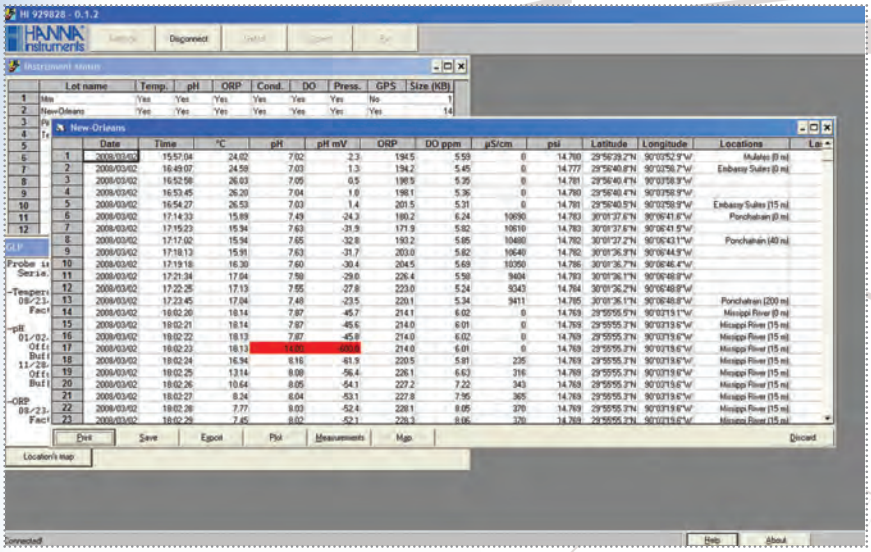
Monitoring and Tracking

When data collection or monitoring requires tracking capabilities, two kinds of methods can be included with the data–timestamp and location. The timestamp expresses the date and the time when the measurement was taken. The time and date (timestamp) are determined by the internal real time clock of the HI 9829. As for location of measurement, the HI 9829 offers two solutions. One is GPS tracking using the HI 9829's internal 12 channel GPS receiver. The second is the FastTracker™ Tag ID system using ID encoded TAGs mounted at the location sites. Users simply touch the TAG receiver to the mounted TAG to store data along with location ID.

GPS (Global Positioning System) Enabled

The new HI 9829 features an internal 12 channel GPS receiver and antenna that calculates its position to track locations along with measurement data. The GPS tracks your location using satellites to within 30 ft (10 m) so you can be sure that you return to the same location for repeated measurements.

Users can connect to GPS tracking software such as Google™ Maps* to view locations where samples have been taken. Measurement information is shown right on the map.







Basic GPS Features

- GPS coordinates shown on the LCD with up to 10 measurement parameters
- GPS signal strength shown on LCD
- Number of satellites shown on LCD
- Logged data is embedded with GPS coordinates

Advanced GPS Features

- Users can associate GPS coordinates with alphanumeric locations
- Distances between current location and predefined locations are displayed arranged by distance
- Memorizes last location and time should signal be lost

HI 929829 PC Software

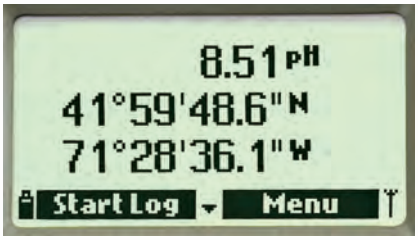
- Manages logged data from the HI 9829
- Displays GPS coordinates with logged data
- Automatically maps samples on your PC (internet connection required)
- Shows location points on map with measurement data



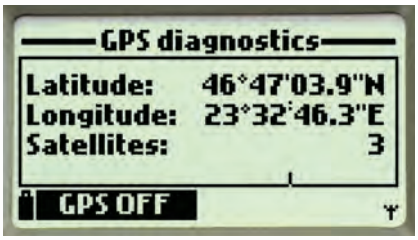
GPS data can be customized to meet specific requirements.



Displays distances between current location and predefined locations.



Display current readings along with GPS coordinates



Shows current position and number of satellites.

*Google™ is a registered trademark of Google™, inc. HANNA Instruments® has no affiliation with Google™.

SPECIFICATIONS	HI 9829	HI 9829 with GPS
Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)	
GPS	–	Yes
Logging Memory from Meter	up to 60000 samples with 13 measurements each	up to 45,000 samples with 15 measurements each (GPS)
Logging Interval	1 second to 3 hours	
Computer Interface	USB (with HI 929829 software)	
FastTracker™ TAG ID	Yes	
Waterproof Protection	IP67	
Environment	0 to 50°C (32 to 122°F); RH 100%	
Power Supply	1.5V alkaline C cells (approx. 150 hours of continuous use without backlight) (4) / 1.2V rechargeable C cells (approx. 70 hours of continuous use without backlight) (4), USB, 12V power adapter	
Dimensions	221 x 115 x 55 mm (8.7 x 4.5 x 2.2")	
Weight	750g (26.5 oz.)	

SPECIFICATIONS	HI 9829 PARAMETERS					
	pH	**mV of pH input**	**ORP mV**	**Ammonium**	**Chloride**	**Nitrate**
Range	0.00 to 14.00 pH	±600.0 mV	±2000.0 mV	0.02 to 200 ppm (as N)	0.6 to 18000 ppm	0.02 to 200 ppm (as N)
Resolution	0.01 pH	0.1 mV	0.1 mV	0.01 ppm to 1 ppm; 0.1 ppm to 200 ppm	0.1 ppm to 100 ppm; 1 ppm to 1000 ppm; 10 ppm to 18000 ppm	0.01 ppm to 1 ppm; 0.1 ppm to 200 ppm
Accuracy	±0.02 pH	±0.5 mV	±1.0 mV	±5% of reading or 2 ppm	±5% of reading or 2 ppm	±5% of reading or 2 ppm

	Conductivity	**TDS**	**Resistivity**	**Salinity**	**Seawater Specific Gravity**
Range	0.000 to 200.000 mS/cm (absolute EC up to 400 mS/cm)	0 to 400000 mg/L or ppm (the maximum value depends on the TDS factor)	0 to 999999 Ω•cm; 0 to 1000.0 kΩ•cm; 0 to 1.0000 MΩ•cm	0.01 PSU	
Resolution	manual: 1 µS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 µS/cm from 0 to 9999 µS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm ; 0.1 mS/cm from 100.0 to 400.0 mS/cm; automatic mS/cm: 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm	manual: 1 mg/L (ppm); 0.001 g/L (ppt); 0.01g/L (ppt); 0.1 g/L (ppt); 1 g/L (ppt); autorange scales: 1 mg/L (ppm) from 0 to 9999 mg/L (ppm); 0.01 g/L (ppt) from 10.00 to 99.99 g/L (ppt); 0.1 g/L (ppt) from 100.0 to 400.0 g/L (ppt); autorange g/L (ppt) scales: 0.001 g/L (ppt) from 0.000 to 9.999 g/L (ppt); 0.01 g/L (ppt) from 10.00 to 99.99 g/L (ppt); 0.1 g/L (ppt) from 100.0 to 400.0 g/L (ppt)	dependent on resistivity reading		0.1 σt, σ0, σ15
Accuracy	±1% of reading or ±1 µS/cm whichever is greater	±1% of reading or ±1 mg/L		±2% of reading or 0.01 PSU whichever is greater	±1 σt, σ0, σ15

	Turbidity	**Dissolved Oxygen**	**Atm. Pressure**	**Temperature**
Range	0.0 to 50.0 FNU; 50 to 1000 FNU	0.0 to 500.0%; 0.00 to 50.00 mg/L	450 to 850 mmHg; 17.72 to 33.46 inHg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K
Resolution	0.1 FNU from 0.0 to 50.0 FNU; 1 FNU from 50 to 1000 FNU	0.1%; 0.01 mg/L	0.1 mmHg; 0.01 inHg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa	0.01°C; 0.01°F; 0.01K
Accuracy	±0.3 FNU or ±2% of reading, whichever is greater	0.0 to 300.0%: ±1.5% of reading or ±1.0% whichever is greater; 300.0 to 500.0%: ±3% of reading; 0.00 to 30.00 mg/L: ±1.5% of reading or 0.10 mg/L whichever is greater; 30.00 mg/L to 50.00 mg/L: ±3% of reading	±3 mmHg within ±15°C from the temperature during calibration	±0.15°C; ±0.27°F; ±0.15K

ordering



- **HI 9829 is supplied complete with your choice of probe and probe maintenance kit.**

  This kit includes HI 7042S (electrolyte solution for DO sensor), (5) O-rings for DO sensor, a small brush, (5) O-rings for probe and a syringe with grease to lubricate the O-rings.

ORDERING INFORMATION

Most **HI 9829 configurations** are supplied with multisensor probe, HI 9828-25 quick calibration standard solution (500 mL), probe maintenance kit, rechargeable Ni-MH batteries (4), power adapter & cable, car 12 V accessory outlet adapter, HI 7698281 USB interface cable, HI 929829 Windows® compatible software, instruction manual and rugged carrying case. Choose your configuration below:

HI 9829-01	Standard meter without probe, 115VAC
HI 9829-02	Standard meter without probe, 230VAC
HI 98290-01	HI 9829 with GPS, 115VAC
HI 98290-02	HI 9829 with GPS, 230VAC
HI 98291-01	HI 9829 and HI 7629829/4 pH, EC, DO, temperature, logging probe with 4 m (13.1') cable, 115VAC
HI 98291-02	HI 9829 and HI 7629829/4 pH, EC, DO, temperature, logging probe with 4 m (13.1') cable, 230VAC
HI 98292-01	HI 9829 and HI 7639829/4 pH, EC, DO, temperature, turbidity, logging probe with 4 m (13.1') cable, 115VAC
HI 98292-02	HI 9829 and HI 7639829/4 pH, EC, DO, temperature, turbidity, logging probe with 4 m (13.1') cable, 230VAC
HI 98293-01	HI 9829 and HI 7629829/10 pH, EC, DO, temperature, logging probe with 10 m (33') cable, 115VAC
HI 98293-02	HI 9829 and HI 7629829/10 pH, EC, DO, temperature, logging probe with 10 m (33') cable, 230VAC
HI 98294-01	HI 9829 and HI 7639829/10 pH, EC, DO, temperature, turbidity, logging probe with 10 m (33') cable, 115VAC
HI 98294-02	HI 9829 and HI 7639829/10 pH, EC, DO, temperature, turbidity, logging probe with 10 m (33') cable, 230VAC
HI 98295-01	HI 98290 with GPS and HI 7629829/4 pH, EC, DO, temperature, logging probe with 4 m (13.1') cable, 115VAC
HI 98295-02	HI 98290 with GPS and HI 7629829/4 pH, EC, DO, temperature, logging probe with 4 m (13.1') cable, 230VAC
HI 98296-01	HI 98290 with GPS and HI 7639829/4 pH, EC, DO, temperature, turbidity, logging probe with 4 m (13.1') cable, 115VAC
HI 98296-02	HI 98290 with GPS and HI 7639829/4 pH, EC, DO, temperature, turbidity, logging probe with 4 m (13.1') cable, 230VAC
HI 98297-01	HI 98290 with GPS and HI 7629829/10 pH, EC, DO, temperature, logging probe with 10 m (33') cable, 115VAC
HI 98297-02	HI 98290 with GPS and HI 7629829/10 pH, EC, DO, temperature, logging probe with 10 m (33') cable, 230VAC
HI 98298-01	HI 98290 with GPS and HI 7639829/10 pH, EC, DO, temperature, turbidity, logging probe with 10 m (33') cable, 115VAC
HI 98298-02	HI 98290 with GPS and HI 7639829/10 pH, EC, DO, temperature, turbidity, logging probe with 10 m (33') cable, 230VAC

PROBES

HI 7609829/4	pH, EC, DO, temperature probe with 4 m (13.1') cable
HI 7609829/10	pH, EC, DO, temperature probe with 10 m (33') cable
HI 7619829/4	pH, EC, DO, temperature, turbidity probe with 4 m (13.1') cable
HI 7619829/10	pH, EC, DO, temperature, turbidity probe with 10 m (33') cable
HI 7629829/4	pH, EC, DO, temperature, logging probe with 4 m (13.1') cable
HI 7629829/10	pH, EC, DO, temperature, logging probe with 10 m (33')cable
HI 7639829/4	pH, EC, DO, temperature, turbidity logging probe with 4 m (13.1') cable
HI 7639829/10	pH, EC, DO, temperature, turbidity logging probe with 10 m (33') cable

SENSOR MODULES

HI 7609829-0	pH
HI 7609829-1	pH/ORP
HI 7609829-2	Dissolved oxygen
HI 7609829-3	EC
HI 7609829-4	EC/Turbidity
HI 7609829-10	Ammonium ISE
HI 7609829-11	Chloride ISE
HI 7609829-12	Nitrate ISE

QUICK CALIBRATION SOLUTIONS

HI 9828-25	Quick calibration solution, 500 mL
HI 9828-27	Quick calibration solution, 1 G

pH CALIBRATION SOLUTIONS

HI 7004L	pH 4.01 buffer solution, 500 mL
HI 7007L	pH 7.01 buffer solution, 500 mL
HI 7010L	pH 10.01 buffer solution, 500 mL

ORP CALIBRATION SOLUTIONS

HI 7021L	ORP test solution @240 mV, 500 mL
HI 7022L	ORP test solution @470 mV, 500 mL

CONDUCTIVITY CALIBRATION SOLUTIONS

HI 7030L	12880 µS/cm calibration solution, 500 mL
HI 7031L	1413 µS/cm calibration solution, 500 mL
HI 7033L	84 µS/cm calibration solution, 500 mL
HI 7034L	80000 µS/cm calibration solution, 500 mL
HI 7035L	111800 µS/cm calibration solution, 500 mL
HI 7039L	5000 µS/cm calibration solution, 500 mL

TDS CALIBRATION SOLUTIONS

HI 7032L	1382 ppm (mg/L) calibration solution, 500 mL
HI 7036L	12.41 ppt (g/L) calibration solution, 500 mL

DISSOLVED OXYGEN SOLUTIONS

HI 7040L	Zero oxygen solution, 500 mL
HI 7042S	Electrolyte solution, 30 mL

CLEANING AND MAINTENANCE SOLUTIONS

HI 70300L	pH/ORP electrode storage solution, 500 mL
HI 7061L	pH/ORP electrode cleaning solution, 500 mL

ACCESSORIES

HI 929829	PC application software
HI 9698281	USB cable
HI 7698290	Short calibration beaker
HI 7698293	Long calibration beaker

Contact us for more information:
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