HI9829

GPS Multiparameter Meters

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

- Logging
  - Logging from probe or meter
- Fast Tracker
  - Tag Identification System
- Sensor Check™
  - Auto-recognition of all sensors
- GLP features
  - Meets Good Laboratory Practices
- Connectivity
  - PC compatible via USB
- Help feature
  - On-screen user guides
- Backlight
  - Backlit, graphic LCD display
- Waterpoof
  - Waterproof casing

Rugged, Waterproof and ideal for field measurements

Rugged, waterproof and easy to use, the HI9829 is the ideal meter for field measurements of lakes, rivers and seas. The HI9829 meter displays 1 to 12 parameters simultaneously from up to 15 user selectable parameters.

Combined with one of the HI76x9829 series probes, the HI9829 can measure water quality parameters such as pH, ORP, conductivity, turbidity, temperature, dissolved oxygen (as % saturation or concentration), resistivity, TDS, salinity, and seawater σ. Atmospheric pressure is measured for DO concentration compensation.

User-friendly Features

The HI9829 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. 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.

HI7609829
for pH/ORP, Dissolved Oxygen, EC

Two probes to choose from. These Digital probes provide stable, noise-free sensor signal management without the need for pre-amplified pH sensors.

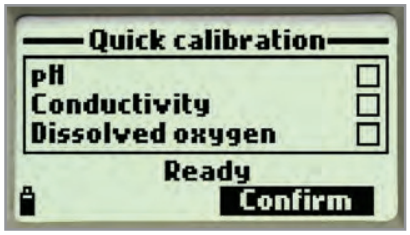
Specifications		HI7609829
Supported Configuration	Connector 1	pH/ORP
	Connector 2	dissolved oxygen
	Connector 3	EC
Upgradeable		to HI7619829, adding EC/turbidity sensor and long protective shield
Temperature sensor		built-in
Autonomous Logging		–
Logging Interval		–
Computer Inteface		–
Memory		–
Operating Temperature		-5 to 55°C*
Maximum Depth		20 m (66')*
Cable Specification		Multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use
Wetted Materials		Body: ABS; Threads: nylon; Shield: ABS/316 SS; Temperature Probe: 316 SS; O-rings: EPDM
Sample Environment		fresh, brackish, seawater
Waterproof Protection		IP68
Dimensions (without cable)		342 mm (13.5"), dia=46 mm (1.8")
Weight (with batteries and sensors)		570 g (20.1 oz.)

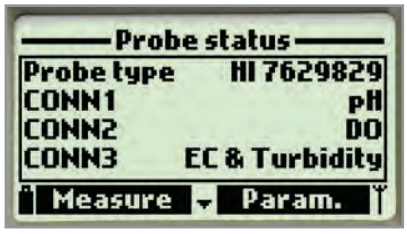
Sensors

Hanna offers a selection of 7 sensors to be used on the intelligent probes. Sensor replacement is quick and easy with screw type connectors and are color coded for easy identification. The HI9829 automatically recognizes sensor presence.

The new HI7609829-4 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. pH in mV readings are also displayed –which is useful for troubleshooting.





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

- Auto-sensor recognition
  - In this example, the HI9829 is identifying a pH, dissolved oxygen and turbidity/EC sensor

A Great Combination

The use of Hanna's microprocessor-based multiparameter intelligent probes with HI9829 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 HI76x9829 probes utilize field replaceable sensors with auto-recognition. The sensors are housed with the probe electronics in a rugged housing and a water-tight cable connection. The HI76909829 probe allows conductivity, pH/ORP (or an ISE), and dissolved oxygen measurement. Other probe models allow turbidity and logging.

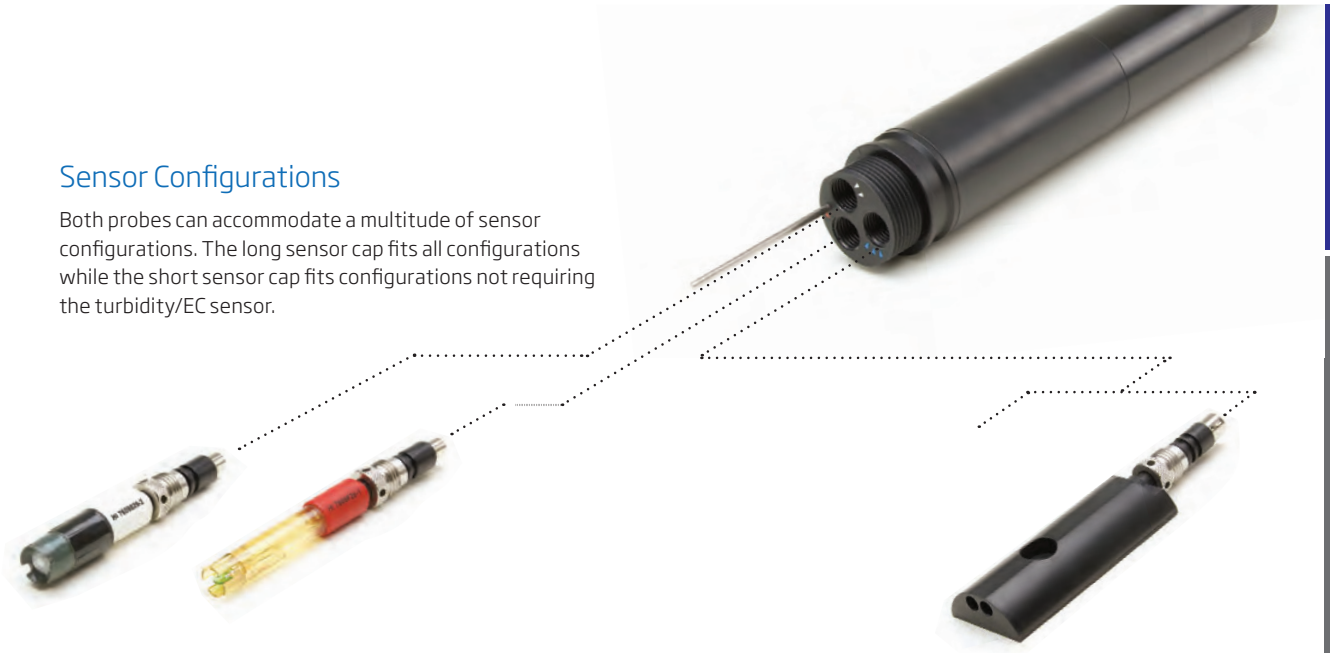
The probes are available with a choice of cable lengths such as 4m, 10m and 20m (13, 33') that utilize a DIN connection to interface with the meters.

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, Fahrenheit and kelvin are displayed and utilized by other detectors for temperature correction.

The HI 7609829-0 and -1 feature a double junction design and are gel filled to increase resistance to contamination. These 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 in water samples. Consistency and quality are the hallmarks of these sensors. Our differential measurement system further enhances the measurement reliability, providing temperature corrected pH.

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

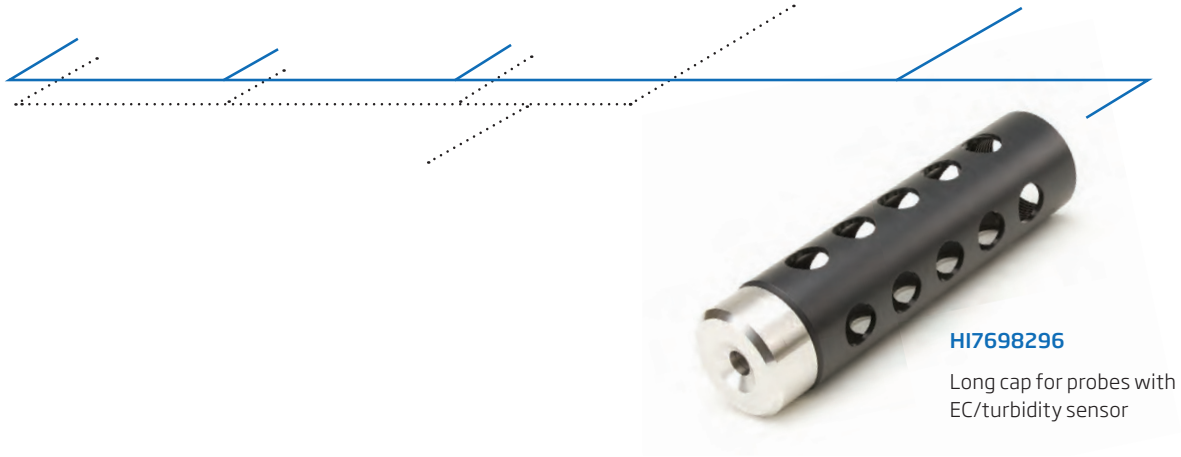
HI7609829-2 DO

pH

HI7609829-1 pH/ ORP

Conductivity and Turbidity

HI7609829-4 EC/Turbidity



HI7698296

Long cap for probes with EC/turbidity sensor

electrode incorporating an extremely constant reference spiral; all potentionmetric probes feature a double junction and solid gell reference design. By utilizing conductivity, the HI9829 can convert ion activity measurements to concentration units. The HI9829 displays these measurements as ppm ammonium-nitrogen, ppm chloride and ppm nitrate-nitrogen.

The HI7609829-3 4-electrode conductivity sensor using the polarographic measurement principal ensures stable conductivity readings. Electrolytic conductivity measures 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, Seawater 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 HI7609829-2 galvanic DO sensor does not require long polarization times so is ready for measurement at a moment's notice. This 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 probe's built-in temperature sensor) and atmospheric pressure (using the HI 9829's internal atmospheric pressure sensor). The DO measurement complies with standard methods 4500-O G and EPA article 360.1.

The HI7609829-4 combined EC/turbidity sensor is a replaceable design for instantaneous conductivity and turbidity measurements that conform to ISO 7027 standards. It provides measurements from 0.0 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. Conductivity measurement is the same as in the HI7609829-3.

Specifications	HI9829
Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)
GPS	–
Logging Memory from Meter	44,000 records
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 (4) / 1.2V NiMH rechargeable C cells (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.)

HI9829 Parameter Specifications

	pH / mV of pH input	ORP mV
Range	0.00 to 14.00 pH / ±600.0 mV	±2000.0 mV
Resolution	0.01 pH / 0.1 mV	0.1 mV
Accuracy	±0.02 pH / ±0.5 mV	±1.0 mV
Calibration	automatic one, two, or three points with five memorized standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer	automatic at one custom point

	Conductivity	TDS	Resistivity	Salinity	Seawater σ
Range	0 to 200 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	0.00 to 70.00 PSU	0 to 50.0 σt, σ0, σ15
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); **automatic:** 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	0.01 PSU	0.1 σt, σ0, σ15
Accuracy	±1% of reading or ±1 µS/cm, whichever is greater	±1% of reading or ±1 mg/L, whichever is greater	–	±2% of reading or ±0.01 PSU, whichever is greater	±1 σt, σ0, σ15
Calibration	automatic one point with six memorized standards (84 µS/cm, 1413 µS/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point	based on conductivity or salinity calibration		one custom point	based on conductivity or salinity calibration

	Turbidity	Dissolved Oxygen	Atm. Pressure	Temperature
Range	0.0 to 99.9 FNU; 100 to 1000 FNU	0.0 to 500.0%; 0.00 to 50.00 ppm	450 to 850 mm Hg; 17.72 to 33.46 in Hg; 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 99.9 FNU; 1 FNU from 100 to 1000 FNU	0.1%; 0.01 ppm	0.1 mm Hg; 0.01 in Hg; 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 ppm: ±1.5% of reading or 0.10 ppm, whichever is greater; 30.00 ppm to 50.00 ppm: ±3% of reading	±3 mm Hg within ±15°C from the temperature during calibration	±0.15°C; ±0.27°F; ±0.15K
Calibration	Automatic 1, 2 or 3 points at 0, 20 and 200 FNU, or custom	automatic one or two points at 0, 100% or one custom point	automatic at one custom point	Automatic at one custom point