



DIN connection



water resistant



interchangeable electrode



replaceable electrode



battery powered



mains powered

## Professional portable multiparameter meter

Ideal for detailed environmental monitoring, the HI-9829 delivers accurate, reliable and dependable measurements to support research and investigation into water quality, waste water, landfill and pollution.

### Star features to support professional measurement in the field

- Logging from probe or meter
- Fast Tracker Tag Identification System
- Auto-recognition of all sensors
- GLP features to support good laboratory practice
- Excellent connectivity with PC compatibility via USB
- On-screen user guides
- Backlit, graphic LCD display
- Waterproof casing

### Which meter do I need?

Designed to support optimum customisation, the HI-9829 multiparameter meter is available in a range of options.

To choose, simply build up the configuration that suits your application best.

#### 1. Meter: with or without GPS

- for meter without GPS select Standard model
- for meter with global positioning select GPS model

#### 2. Digital probe: with or without logging

#### 3. Sensor: with or without turbidity

- for turbidity select combined EC/turbidity sensor
- turbidity not required? select EC sensor option

#### 4. Choice of three cable lengths:

4m, 10m, 20m cable length

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# GPS Multiparameter Meter | HI-9829



## Rugged and waterproof

**Rugged, waterproof and easy to use, the HI-9829 is the ideal meter for field measurement in lakes, rivers and seas.**

It displays 1 to 12 parameters simultaneously from up to 14 user selectable parameters.



## GPS Capabilities

**The HI-9829 is offered with or without GPS capabilities.**

The meter with the GPS option incorporates a built-in GPS receiver and antenna to guarantee an accurate position.

Measurements from specific locations are tracked with detailed coordinate information that can be viewed immediately on the display and reviewed on Google™ Maps\* using a PC

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## Choice of dedicated sensors to measure up to 14 water quality parameters:

**Digital probes offer logging and non-logging options with a number of tailored sensor configurations to measure up to 14 water quality parameters:**

pH, ORP, conductivity, turbidity, temperature, ions ammonium, nitrate, chloride, dissolved oxygen (as % saturation or concentration), resistivity, TDS, salinity, and seawater  $\sigma$ .

Atmospheric pressure is measured for DO concentration compensation.



## Autonomously logging digital probes

**The logging probe is available with or without a combined EC/turbidity sensor.**

After starting a log, both versions will autonomously log parameters without further connection to the meter. Once the log has begun, simply detach the probe and leave it in situ. The probe will happily carry on logging until your selected sampling period is complete - even though it is disconnected from the meter.

The logged measurements can be subsequently retrieved by connecting the logging probe to the meter or a to PC.



## User friendly features

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

The HELP key displays context sensitive help.

The alpha-numeric keypad offers a user friendly way to complete the input fields.

## dedicated digital probes & variable sensor configurations

Hanna probes for use with the HI-9829 are designed to offer you maximum opportunity to tailor the configuration to meet your specific applications.

### Make your choice easier by using these four quick steps



#### 1 Logging or non-logging

The HI-9829 can be used with logging or non-logging probes.



#### 2 Choice of sensor configuration

Each logging or non-logging probe is offered with a choice of sensor configurations.

Depending on the sensor configuration, both the logging and non-logging probes are offered with a short or long sensor shield cap.

- Long cap: fits all configurations
- Short cap: fits configurations WITHOUT the turbidity/EC sensor



#### 3 Cable length

All meters are offered with a choice of three cable lengths:

- 4 metres
- 10 metres
- 20 metres



#### 4 ISE?

If you are looking to use ISE, select from the following sensors as an extra option.

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

## high spec probes

Digital probes provide stable, noise-free sensor signal management without the need for further amplification.



### Field-ready

Designed for use out on location HI-9829 probes use field-replaceable sensors with auto-recognition. They are also housed in a rugged casing with a watertight cable connection.

### Quick calibration

- To calibrate in the field simply screw the calibration beaker filled with solution onto the probe, select 'quick calibration' from the menu and press OK
- Individual calibration can be performed using multiple calibration points
- Ready-prepared quick calibration solution allows users to standardise pH and conductivity with one calibration solution

### What length of cable?

A choice of three cable lengths with options for 4m, 10m and 20m makes the meter a popular option for a wide range of uses in tough conditions.

### Collect and save your data

The logging option allows probes to be connected directly to a PC and to download log files directly from the probes using Hanna software and USB cable.

- Probes with the logging function have a logging memory with the capacity to store up to 140,000 individual samples or 35,000 complete sample sets. Data includes a date and time stamp to allow up to 70-day deployment with all channels logging at 10 minute intervals.

14,000 individual samples

35,000 full sample sets

70-day deployment with full channel logging every 10 minutes

## sensors to suit

Hanna offers a choice of eight types of sensor to be used on the intelligent probes.

- Replacement is quick and easy with screw type connectors and colour coding for easy identification
- Sensors are automatically recognised as soon as they are plugged in.
- Combined EC/Turbidity sensor 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
- One of a choice of three ISE sensors can be used in place of the pH sensor
- ISE sensors include: ammonium ISE; chloride ISE; nitrate ISE. Add these as an extra option to your order as required.
- pH in mV readings are also displayed - useful for troubleshooting



## A choice of sensors

### pH/ORP

pH or pH/ORP sensors are gel filled and use a resilient PEI body to protect them from solid particles.

Using the built-in temperature sensor, temperature compensation is automatic from -5 to +55°C.

### ISE

A choice of three ion selective electrodes (ISE) is available for constant reporting of common surface water contaminants: nitrate, ammonium and chloride ISE are available.

Each ISE electrode is a combination electrode incorporating a constant reference spiral and features a double junction and solid gel reference design. By using conductivity, the HI-9829 converts the ion activity measurement to concentration units and displays these as ppm ammonium-nitrogen; ppm chloride; and ppm nitrate-nitrogen.

### Dissolved Oxygen

The HI-9829 galvanic DO sensor does not require long polarisation times which makes it ready for measurement at a moment's notice. It also uses a replaceable cap design for ease of maintenance and a safe non-toxic electrolyte.

DO readings are compensated for the effects of temperature and atmospheric pressure using the built in temperature and internal atmospheric pressure sensors.

### EC/TDS

The HI-7609829-3 four-electrode conductivity sensor uses the polarographic measurement principle to ensure stable conductivity readings.

Absolute conductivity, temperature-corrected conductivity, salinity, seawater and water hardness (TDS) determinations are all possible with measurements from this sensor.

### Combined EC/Turbidity

The combined EC/turbidity sensor is a replaceable design for instant conductivity and turbidity measurements that conform to ISO7027 standards. It provides measurement from 0.0 to 1000FNU.

Conductivity measurement is the same as for the single EC sensor.

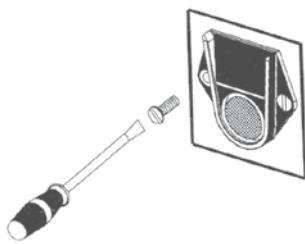
Order Information	Price	Code
<b>Sensor modules</b>		
pH	£00.00	HI-7609829-0
pH/ORP	£00.00	HI-7609829-1
ISE: Ammonium	£00.00	HI-7609829-10
ISE: Chloride	£00.00	HI-7609829-11
ISE: Nitrate	£00.00	HI-7609829-12
Dissolved Oxygen	£00.00	HI-7609829-2
EC/TDS	£00.00	HI-7609829-3
EC/Turbidity	£00.00	HI-7609829-4

## more about GPS and tracking

### Monitoring and tracking

All models of HI-9829 are equipped with the Fast Tracker TAG ID system. This is invaluable for associating measurements with their locations.

They also feature a real-time clock which stamps all logged data with a time and date in addition to location information.



### Fast tracker - TAG Identification System

Hanna Fast Tracker TAG system simplifies test logging using iButtons with a unique ID which can be installed at different sampling sites.

- When the matching connector on the meter contacts the location button, measurements are logged and labeled with alphanumeric user-entered location ID.
- Location, date, time and measurements are logged into the meter for transfer to PC.
- Multiple iButton TAGs can be installed and additional TAGS can be ordered for all your traceability requirements.
- With GPS models, Fast Tracker TAG complements the GPS for ultimate tracking.



# GPS Multiparameter Meter | HI-9829



## GPS for optimum positioning data

The HI-9829 with GPS can track measurement locations with detailed coordinate information.

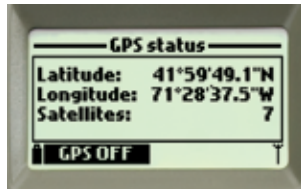
It features an internal 12 channel GPS receiver and antenna to calculate its position to track locations and measurement data.

Location can be tracked to within 10m to ensure repeated measurements can be taken at the same locations.

Coordinates are shown on the LCD together with up to 10 measurement parameters and are recorded with logged data.

View locations where samples have been taken by connecting to GPS tracking software such as Google™ Maps\* and see measurement information right on the map.

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



## Basic GPS + advanced features

HI-9829 with GPS comes complete with a basic set of benefits together with a set of advanced features.



## Basic GPS features

GPS coordinates shown on LCD with up to 10 measurement parameters

GPS signal strength shown on LCD

Logged data is embedded with GPS coordinates

GPS status screen

## Advanced GPS features

Users can associate GPS coordinates with alphanumeric locations

Distances between current location and predefined locations are displayed - arranged by distance

Memorises last location and time in case signal is lost

Line	Date	Time	Temp[°C]	pH	DO[ppm]
1	20110608	18:42:11	24.84	6.27	45.4
2	20110608	18:42:22	24.84	6.27	45.4
3	20110608	18:42:27	24.79	6.29	46.2
4	20110608	18:42:32	24.73	6.25	43.5
5	20110608	18:42:37	26.53	7.36	12.9
6	20110608	18:43:42	26.66	7.30	12.3
7	20110608	18:42:47	26.71	7.41	12.2
8	20110608	18:42:52	26.73	7.45	13.1
9	20110608	18:42:57	26.76	7.48	13.4
10	20110608	18:43:02	26.74	7.45	17.3
11	20110608	18:43:07	26.73	7.50	14.4
12	20110608	18:43:12	26.76	7.60	14.6
13	20110608	18:43:17	26.76	7.62	14.7
14	20110608	18:43:22	26.76	7.63	15.0
15	20110608	18:43:27	26.73	7.63	15.8
16	20110608	18:43:32	26.74	7.64	16.1
17	20110608	18:43:37	26.74	7.65	16.2
18	20110608	18:43:42	26.73	7.66	16.4
19	20110608	18:43:47	26.70	7.66	17.3
20	20110608	18:43:52	26.72	7.67	17.0
21	20110608	18:43:57	26.73	7.68	17.0
22	20110608	18:44:02	26.71	7.68	17.2
23	20110608	18:47:36	26.52	6.52	47.7

## Application software

Completing the package, dedicated Hanna software:

- Manages logged data
- Displays GPS coordinates with logged data
- Automatically maps samples on PC via internet connection
- Shows location points on map with measurement data

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## specifications for HI-9829



### Probe

		HI-7609829 / HI-7619829** without logging	HI-7629829 / HI-7639829** autonomous logging	
Temperature Compensation	Connector 1	pH, pH/ORP, ammonium ISE, chloride ISE, nitrate ISE	pH, pH/ORP, ammonium ISE, chloride ISE, nitrate ISE	
	Connector 2	dissolved oxygen	dissolved oxygen	
	Connector 3	EC	EC	
Upgradeable		to HI-7619829, adding EC/turbidity sensor and long protective shield	to HI-7639829, adding EC/turbidity sensor and long protective shield	
Temperature sensor		built-in	built-in	
Autonomous Logging		-	yes	
Logging Interval		-	1 second to 3 hours	
Computer Interface		-	USB (HI-76982910)	
Memory		-	140,000 measurements (single parameter logged); 35,000 measurements (all parameters logged)	
Operating Temperature		-5 to 55°C*	20 m*	
Maximum Depth		20 m*	20 m*	
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		
Logging Probe Internal Battery Type		-	1.5V (4) AA alkaline	
Logging Probe Battery Life Note: Log space must be available for continuous logging		-	Interval	All channels logging (no averaging)
		-	1-5 seconds	72 hours
		-	1 minute	22 days
		-	10 minutes	70 days
Sample Environment		fresh, brackish, seawater	fresh, brackish, seawater	
Waterproof Protection		IP68	IP68	
Dimensions (without cable)		342 mm, dia=46 mm	442 mm, dia 46 mm	
Weight (with batteries and sensors)		570 g	775 g	

\* Reduced for ISE sensors    \*\* NOTE for Turbidity without logging select probe HI-7619829  
for Turbidity with autonomous logging select probe HI-7639829

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## HI-9829 GPS Multiparameter Meter

	HI-9829	HI-9829 with GPS
Temperature Compensation	automatic from -5 to 55°C	automatic from -5 to 55°C
GPS	-	12 channel receiver, 10 m (30 ft) range
Logging Memory from Meter	44,000 records	44,000 records
Logging Interval	1 second to 3 hours	1 second to 3 hours
Computer Interface	USB (with HI-929829 software)	USB (with HI-929829 software)
FastTracker™ TAG ID	Yes	Yes
Waterproof Protection	IP67	IP67
Environment	0 to 50°C; RH 100%	0 to 50°C; RH 100%
Power Supply	1.5V alkaline C cells (4) / 1.2V NiMH rechargeable C cells (4), USB, 12V power adapter	1.5V alkaline C cells (4) / 1.2V NiMH rechargeable C cells (4), USB, 12V power adapter
Dimensions / Weight	221 x 115 x 55 mm / 750g	221 x 115 x 55 mm / 750g

## HI-9829 Parameters

	Range	Resolution	Accuracy @ 20°C	Calibration
pH/mV of pH input	0.00 to 14.00 pH / ±600.0 mV	0.01 pH / 0.1 mV	±0.02 pH / ±0.5 mV	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
ORP mV	±2000.0 mV	0.1 mV	±1.0 mV	automatic at one custom point
Ammonium-Nitrogen	0.02 to 200 ppm (as N)	0.01 ppm to 1 ppm; 0.1 ppm to 200 ppm	±5% of reading or 2 ppm, whichever is greater	automatic at one custom point
Chloride	0.6 to 200 ppm	0.01 ppm to 1 ppm; 0.1 ppm to 200 ppm	±5% of reading or 2 ppm, whichever is greater	1 or 2 point, 10 ppm and 100 ppm
Nitrate-Nitrogen	0.62 to 200 ppm (as N)	0.01 ppm to 1 ppm; 0.1 ppm to 200 ppm	±5% of reading or 2 ppm, whichever is greater	1 or 2 point, 10 ppm and 100 ppm
Conductivity	0 to 200 mS/cm (absolute EC up to 400 mS/cm)	<b>manual:</b> 1 µS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; <b>automatic:</b> 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; <b>automatic mS/cm:</b> 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	±1% of reading or ±1 µS/cm, whichever is greater	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
TDS	0 to 400000 mg/L or ppm (the maximum value depends on the TDS factor)	<b>manual:</b> 1 mg/L (ppm); 0.001 g/L (ppt); 0.01 g/L (ppt); 0.1 g/L (ppt); 1 g/L (ppt); <b>automatic:</b> 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); <b>autorange g/L (ppt) scales:</b> 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)	±1% of reading or ±1 mg/L, whichever is greater	based on conductivity or salinity calibration
Resistivity	0 to 999999 Ω•cm; 0 to 1000.0 kΩ•cm; 0 to 1.0000 MΩ•cm	dependent on resistivity reading	-	-
Salinity	0.00 to 70.00 PSU	0.01 PSU	±2% of reading or ±0.01 PSU, whichever is greater	one custom point
Seawater σ	0 to 50.0 σt, σ0, σ15	0.1 σt, σ0, σ15	±1 σt, σ0, σ15	based on conductivity or salinity calibration
Turbidity	0.0 to 99.9 FNU; 100 to 1000 FNU	0.1 FNU from 0.0 to 99.9 FNU; 1 FNU from 100 to 1000 FNU	±0.3 FNU or ±2% of reading, whichever is greater	Automatic 1, 2 or 3 points at 0, 20 and 200 FNU, or custom
Dissolved Oxygen	0.0 to 500.0%; 0.00 to 50.00 ppm	0.1%; 0.01 ppm	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	automatic one or two points at 0, 100% or one custom point
Atm. Pressure	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	0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa	±3 mm Hg within ±15°C from the temperature during calibration	automatic at one custom point
Temperature	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K	0.01°C; 0.01°F; 0.01K	±0.15°C; ±0.27°F; ±0.15K	Automatic at one custom point









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