

# HI 9828

GPS Multiparameter Meter

with Fast Tracker™ Tag Identification System



HANNA

98.400%	53.73 mS/cm
8.25 pH	43.64 mS/cm <sup>2</sup>
65.43 °F	26.86 tds/ppt
30.07 inHg	35.55 Sal
41°59'48.6" N	26.4 σ <sub>t</sub>
71°28'36.1" W	349.7 ORP

Log Menu

HI 9828 pH/ORP/EC/DO



ISO 9001:2000 Certified



 **HANNA**<sup>®</sup>  
instruments  
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## HI 769828 Multiparameter, Intelligent Probe

HANNA's HI 769828 multiparameter probe incorporates a built-in microprocessor and amplifiers that convert the high impedance signals from the sensors of the probe eliminating common problems associated with high impedance signals such as limitation of cable length and noise. This allows the probe to have a reliable communication with the meter and also immediately warns the user of problems such as a broken cable. The standard cable lengths of the probe are 4, 10 and 20 meters (13, 32 and 64 feet) and custom lengths are also available.

The probe also features HANNA's Quick Calibration which allows the user to calibrate pH and conductivity with one solution in a single, simple step. Dissolved Oxygen is also calibrated in one step in saturated air. The probe houses 5 of the 6 measured parameters: pH, ORP, EC, dissolved oxygen and temperature. The sensors are all independently replaceable and are easy to maintain and keep clean. The sensors are protected by an outer PVC/stainless steel sleeve and cap which is suitable for use in 2" wells. The probe housing is rated IP68 standard.

### HI 9828 is supplied complete with a 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 multiparameter probe and a syringe with grease to lubricate the O-rings.*

◀ **Sensor replacement is quick and easy** with screw type connectors and color coded sensors.

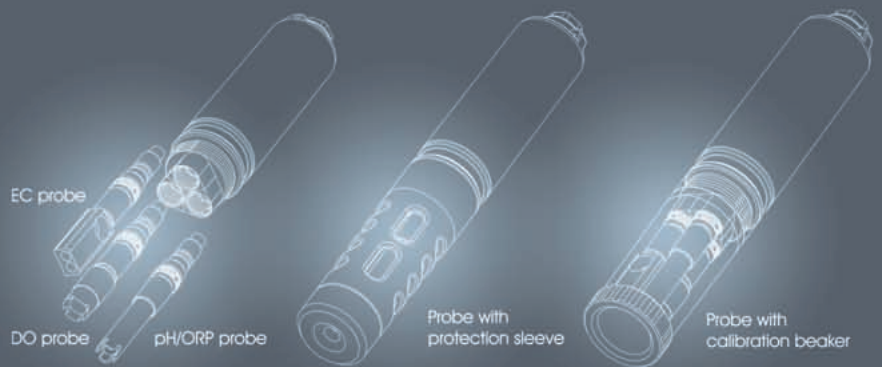
The **galvanic DO sensor** does not require polarization time so it's ready at a moment's notice.

The **4-ring conductivity system** ensures stable conductivity readings that are immune to surface coating. Absolute conductivity, temperature corrected conductivity, salinity, specific gravity and TDS determinations are possible with measurements from this sensor.

The HI 9828 **automatically recognizes** the presence of either the pH or pH/ORP sensor.

Both sensors have a cloth junction which allows greater sensitivity, and are gel filled for improved resistance to contamination.

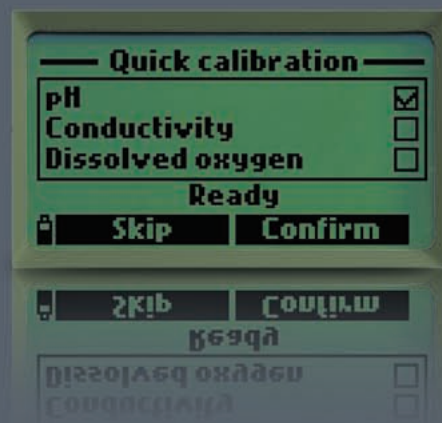
The meter also displays pH in mV readings—ideal for troubleshooting.



## Field Ready

### Quick Calibration

In the field, the Quick Calibration feature verifies probe functionality and calibration with a single calibration solution (HI 9828-25). Simply screw the calibration beaker filled with solution onto the probe, select "Quick calibration" from the menu and press OK. Individual calibration may also be performed using multiple calibration points.





# HI 9828

## GPS Multiparameter Meter

with Fast Tracker™ Tag Identification System

HANNA's new HI 9828 multiparameter portable meter with GPS receiver monitors up to 13 different water quality parameters (6 measured, 7 calculated).

Measurements from specific locations are tracked with detailed coordinate information that can be viewed immediately on the display. GPS information can be transferred to a PC using HANNA's HI 929828 software. GPS information can also be viewed by GPS mapping software such as Google™ maps\*. Clicking on visited locations using mapping software such as Google™ Maps displays measurement information. The built-in 12 channel GPS receiver and antenna guarantees a position accuracy of 30 ft (10 m).

pH, pH/mV, ORP,  
% saturation DO, mg/L DO,  
EC, absolute EC, resistivity,  
TDS, salinity,  
seawater specific gravity,  
atmospheric pressure &  
temperature

For measuring points within a 30 ft range or where GPS signals are not available, HI 9828's Fast Tracker™ is invaluable for associating measurements with their locations.

HANNA's exclusive Fast Tracker™—Tag I.D. System monitors and records data using iButton®s that can be installed at any number of sampling sites.

The HI 9828 has a graphic, backlit display that automatically sizes the digits to fit the screen and allows full configuration of each parameter measured along with on-screen graphing capability. The meter incorporates comprehensive GLP features and the downloading of data via USB connection.

Each parameter is supported by on-screen context sensitive help, both in the calibration mode and during measurement.

Designed for outdoor environments, the meter is impact resistant and waterproof meeting IP67 standards (30 minutes immersion under 1 m of water). The multi sensor probe can be left underwater (IP68 standard).

For field calibration, HANNA's Quick Calibration solution allows users to standardize pH and conductivity with one solution.

# GPS (Global Positioning System) Enabled

The new HI 9828 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.

## 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

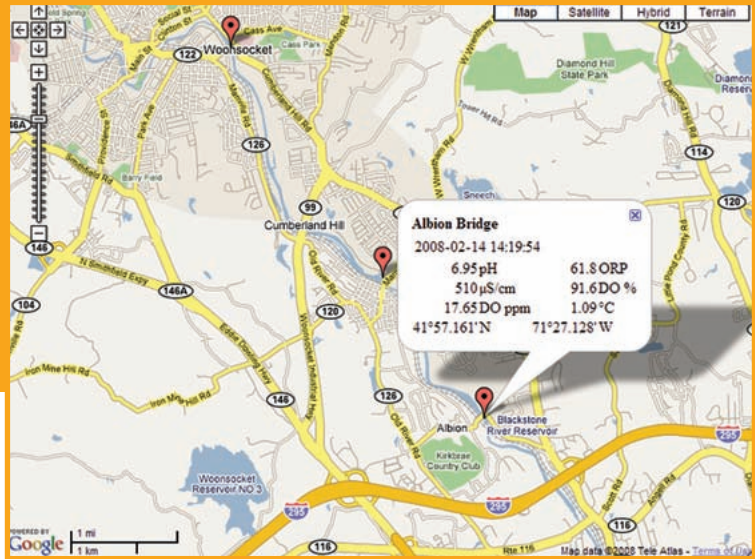
## Advanced GPS Features

- 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

## Track Measurement Locations

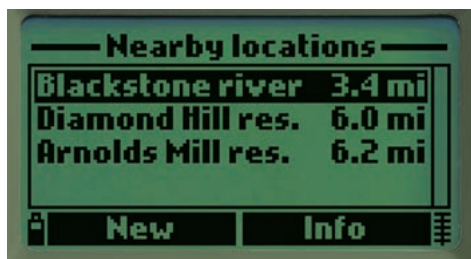
Users can connect to GPS tracking software such as Google™ Maps\* to view locations where samples have been taken.

Measurement information is shown right on the map.

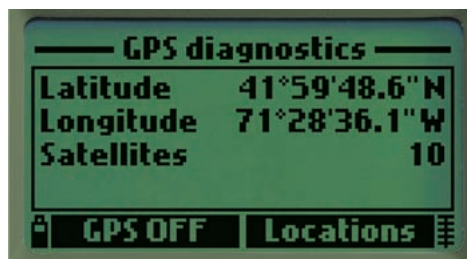


## HI 929828 PC Software

- Manages logged data from the HI 9828
- Displays GPS coordinates with logged data
- Automatically maps samples on your PC (internet connection required)
- Shows location points on map along with measurement data



Displays distances between current location and predefined locations.



Shows current position and number of satellites.



GPS data can be customized to meet specific requirements.



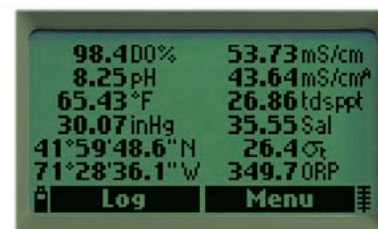
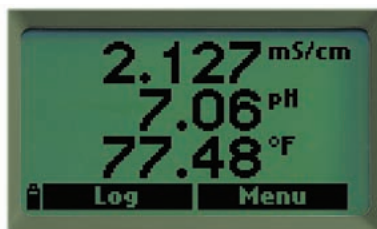
## Fast Tracker™ Tag Identification System

HANNA's iButton® Tag Identification System simplifies test logging. iButton®s with a unique ID can be installed at various sampling sites. When the matching connector on the meter contacts the location button, measurements are logged and labeled with the alphanumeric user-entered location ID. Location, date, time and measurements are logged into the meter which can be transferred to a PC. The Fast Tracker™ system complements the GPS for ultimate tracking.

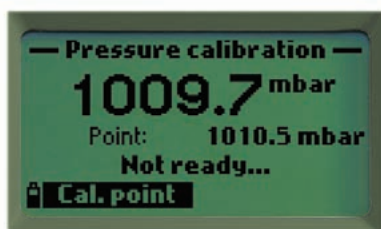


- Display up to 12 parameters
- Track measurement locations with GPS
- Meter features IP67 and probe features IP68 waterproof protection
- Exclusive Fast Tracker™—Tag I.D. System simplifies test logging
- Graphic LCD with backlight
- Built-in barometer for DO compensation
- Quick Calibration feature
- Measurement check eliminates any erroneous readings
- Auto recognition of pH and pH/ORP probe
- Logger function records the data of all connected sensors
- Log-on-demand and automatic logging (up to 60,000 samples)
- Can display logged data as graphs
- USB for PC connectivity
- Auto-range of EC and TDS readings
- Good Laboratory Practice feature with the last 5 calibrations recorded
- All sensors are field replaceable
- Meter accepts both alkaline and rechargeable batteries
- Rugged probe with stainless steel tip has a diameter under 2" for wells and pipes

## Fully Configurable Measurement Screen

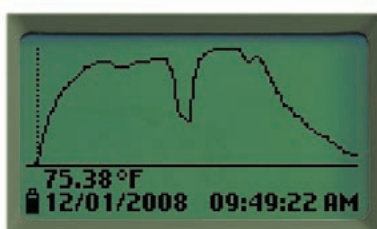


## Intuitive Configuration, Measurement and Help



### Pressure

Atmospheric pressure calibration and measurement can be made in a choice of units.



### Graphing

Trend graphing may be viewed on the display or transferred to a PC. The sample date and time stamp will also be displayed.



### Help

The context sensitive help screen is always accessible.

## SPECIFICATIONS

## HI 9828

pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy	±0.02 pH
mV of pH input	Range	±600.0 mV
	Resolution	0.1 mV
	Accuracy	±0.5 mV
ORP	Range	±2000.0 mV
	Resolution	0.1 mV
	Accuracy	±1.0 mV
Dissolved Oxygen	Range	0.0 to 500.0% / 0.0 to 50.00 mg/L
	Accuracy	0.0 to 300.0%: ±1.5% of reading or ±1.0% whichever is greater; 300.0 to 500.0%: ±3% of reading; 0.0 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
Conductivity	Range	0.000 to 200.000 mS/cm (absolute EC up to 400 mS/cm)
	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
	Accuracy	±1% of reading or ±1 µS/cm whichever is greater
Resistivity	Range	0 to 999999 Ω-cm; 0 to 1000.0 kΩ-cm; 0 to 1.0000 MΩ-cm
	Resolution	Dependent on resistivity reading
TDS	Range	0 to 400000 mg/L or ppm (the maximum value depends on the TDS factor)
	Resolution	Manual: 1 mg/L (ppm); 0.001 g/L (ppt); 0.01 g/L (ppt); 0.1 g/L (ppt); 1 g/L (ppt); Auto-range 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); Auto-range 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)
	Accuracy	±1% of reading or ±1 mg/L
Salinity	Range	0.00 to 70.00 PSU (Extended Practical Salinity Scale)
	Accuracy	±2% of reading or 0.01 PSU whichever is greater
Seawater Specific Gravity	Range	0.0 to 50.0 σ <sub>t</sub> , σ <sub>0</sub> , σ <sub>15</sub>
	Resolution	0.1 σ <sub>t</sub> , σ <sub>0</sub> , σ <sub>15</sub>
	Accuracy	±1 σ <sub>t</sub> , σ <sub>0</sub> , σ <sub>15</sub>
Atm. Pressure	Range	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
	Resolution	0.1 mmHg; 0.01 inHg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa
	Accuracy	±3 mmHg within ±15°C from the temperature during calibration
Temperature	Range	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K
	Resolution	0.01°C; 0.01°F; 0.01K
	Accuracy	±0.15°C; ±0.27°F; ±0.15K
Calibration	pH	Automatic 1, 2, or 3 points with 5 memorized standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or 1 custom buffer
	ORP	Automatic at 1 custom point
	Conductivity, Salinity	Automatic 1 point with 6 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
	DO	Automatic 1 or 2 points at 0, 100% or 1 custom point
	Resistivity, TDS, σ	Based on conductivity or salinity calibration
	Atm. Pressure	Automatic at 1 custom point
	Temperature	Automatic at 1 custom point
	Temperature Compensation	Automatic from -5 to 55°C (23 to 131°F)
	Logging Memory	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 929828 software)	
Waterproof Protection	Meter IP67, Probe IP68	
Environment	0 to 50°C (32 to 122°F); RH 100%	
Power Supply	(4) 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)	
Dimensions Meter / Probe	221 x 115 x 55 mm (8.7 x 4.5 x 2.2") / 270 x 46 mm DIA (10.6 x 1.8" DIA)	
Weight	Meter: 750g (26.5 oz.); Probe: 750g (26.5 oz.)	

# HI 9828

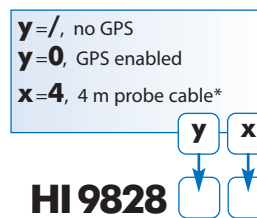
## GPS Multiparameter Meter

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### ORDERING INFORMATION

**HI 9828** is supplied with HI 769828 multisensor probe (pH/ORP, EC, DO, temperature), HI 9828-25 quick calibration standard solution (500 mL), probe maintenance kit, rechargeable C size Ni-MH batteries (4), power adapter & cable, car 12V accessory outlet adapter, HI 7698281 USB interface cable, HI 9828 Windows® compatible software and instruction manual in a rugged carrying case.

### Configure your HI 9828:



\* Different probe cable lengths  
**x = 10**, 10 m probe cable  
**x = 20**, 20 m probe cable  
**x = 30**, 30 m probe cable  
**x = 40**, 40 m probe cable  
**x = 50**, 50 m probe cable  
**x = 60**, 60 m probe cable  
**x = 70**, 70 m probe cable  
**x = 80**, 80 m probe cable  
**x = 90**, 90 m probe cable  
**x = 100**, 100 m probe cable

### ACCESSORIES

#### PROBES

- HI 769828-0** pH sensor, single junction, non refillable
- HI 769828-1** pH/ORP sensor
- HI 769828-2** DO sensor
- HI 769828-3** EC sensor



#### 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

#### DISSOLVED OXYGEN SOLUTIONS

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

#### CONDUCTIVITY CALIBRATION SOLUTIONS

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

#### TDS CALIBRATION SOLUTIONS

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

#### CLEANING AND MAINTENANCE SOLUTIONS

- HI 70300L** Electrode storage solution, 500 mL
- HI 7061L** Electrode cleaning solution, 500 mL

#### OTHER ACCESSORIES

- HI 7698281** USB interface cable
- HI 7698282** Probe maintenance kit
- HI 7698283** Calibration beaker
- HI 7698284** Flow cell
- HI 710045** Power supply cable
- HI 710046** Lighter cigarette cable
- HI 929828** Software application
- HI 920005** iButton® with holder (5 pcs)