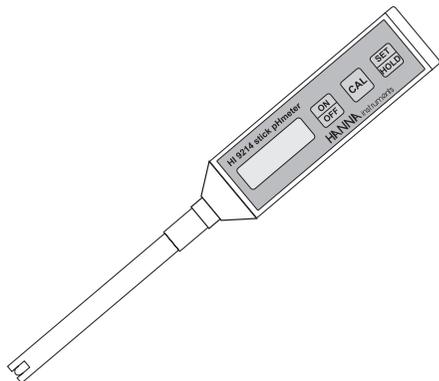


## Instruction Manual

### HI 9214

#### Stick pH & Temperature Meter



Dear Customer,  
Thank you for choosing a Hanna product.  
This manual will provide you with the necessary information for correct operation of the meter. Please read it carefully before using the meter.  
If you need additional technical information, do not hesitate to e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com).  
This instrument is in compliance with the **CE** directives.

### PRELIMINARY EXAMINATION

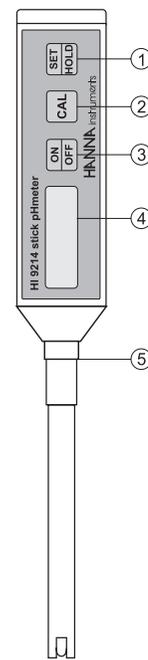
Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If there is any damage, notify your Dealer.

HI 9214 is supplied complete with:

- HI 12170 pH electrode
- HI 710003 soft carrying case
- 9V battery and instruction manual.

**Note:** Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

### FUNCTIONAL DESCRIPTION



- 1) SET/HOLD key, to change measurement range, confirm values during calibration, and freeze readings on the LCD
- 2) CAL key, to enter calibration mode
- 3) ON/OFF key, to switch the meter ON and OFF
- 4) Liquid Crystal Display



- 5) Screw-type socket for HI 12170 pH-electrode

### SPECIFICATIONS

Range	-2.00 to 16.00 pH / -5.0 to 70.0 °C
Resolution	0.01 pH / 0.1 °C
Accuracy (@20°C/68°F)	±0.02 pH / ±0.5 °C
Typical EMC Deviation	±0.02 pH / ±0.4°C
pH Calibration	Automatic, 1 or 2 point, with 3 memorized buffer values
Temperature Compensation	Automatic
pH Electrode	HI 12170, plastic body, gel filled, with internal temperature sensor and screw connector (included)
Battery Type	1 x 9V, alkaline
Battery Life	700 hours of continuous use
Auto-off	after 8 minutes of non-use
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	185 x 42 x 26 mm (7.3 x 1.7 x 1.0")
Weight	160 g (5.6 oz.)

### ACCESSORIES

HI 12170	Plastic body, gel filled pH electrode with built-in temperature sensor and screw-type connector
HI 70004P	pH 4.01 buffer solution, 20 mL sachet (25 pcs)
HI 70007P	pH 7.01 buffer solution, 20 mL sachet (25 pcs)
HI 70010P	pH 10.01 buffer solution, 20 mL sachet (25 pcs)
HI 7004L	pH 4.01 buffer solution, 500 mL bottle
HI 7007L	pH 7.01 buffer solution, 500 mL bottle
HI 7010L	pH 10.01 buffer solution, 500 mL bottle
HI 70300L	Storage solution, 500 mL bottle
HI 710003	Soft carrying case

### WARRANTY

All Hanna Instruments meters are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. Electrodes and probes are warranted for a period of six months. This warranty is limited to repair or replacement free of charge.

Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

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Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

### GENERAL DESCRIPTION

HI 9214 is a compact, stick-type, microprocessor-based pH/°C meter designed to be easily carried anywhere.

Main features are: interchangeable plastic-body electrode, simple controls on the front panel, low battery detector, simple calibration procedure and lightweight ABS plastic housing.

The HI 12170 pH-electrode has a built-in temperature sensor for quick and accurate temperature measurements, and automatic temperature compensation.

The meter has three memorized buffer values (pH 4.01, pH 7.01, pH 10.01) and automatic buffer recognition to avoid errors during calibration. There are no trimmers making calibration an easy process, even for non-technical personnel.

The electrode screws directly onto the meter's housing without requiring cables or separate temperature probes.

The electrode Ultem® body is rugged and will stand up to the effects of most chemicals in the lab and industry.

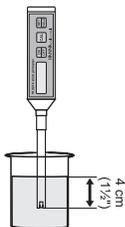
## OPERATIONAL GUIDE

- The meter is supplied complete with a 9V battery. Remove the battery compartment cover on the back of the meter, install the battery while paying attention to its polarity.
- Always remove the electrode protective cap before taking any measurements. If the electrode has been left dry, soak the tip in HI 70300 storage solution for half an hour to reactivate it.
- Connect the pH electrode to the screw type connector on the meter. Be sure that the electrode and the meter connections are clean and dry to ensure a positive contact. Turn the meter on by pressing ON/OFF.



- The LCD will show all the used segments for a few seconds and then enters the normal measurement mode.

- Submerge the probe tip (at least 4cm/ 1½") into the sample to be tested.
- **To take pH measurements** press the SET/HOLD button to select the pH range. Stir briefly and wait for the reading to stabilize.
- The display will show the pH value automatically compensated for temperature variations.



**Note:** In order to take accurate pH measurements, make sure the instrument has been calibrated before use.

**Note:** If measurements are taken in different samples successively, it is recommended to rinse the electrode thoroughly to avoid cross-contamination. After cleaning, rinse the electrode with some of the sample to be measured.

• **To take temperature measurements** press the SET/HOLD button to select the temperature mode. Stir briefly and wait for the reading to stabilize.

• **To freeze the display**, while in measurement mode, press and hold the SET/HOLD button until the HOLD tag lights up. The reading will be frozen on the LCD.



Press the SET/HOLD button again to return to normal mode.

**Note:** After use, rinse the electrode with water to minimize contamination and store it with a few drops of storage (HI 70300) or pH7 (HI 7007) solution in the protective cap. NEVER USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.

**Note:** Always turn the meter OFF and replace the electrode protective cap after use.

## BATTERY REPLACEMENT

When the battery becomes weak, the battery symbol on the LCD will light up and, at startup, the meter displays the "Eb" message for a few seconds.

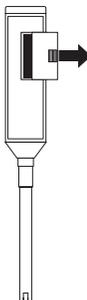


When the low battery indicator appears, only a few hours of battery life is remaining. It is recommended to replace the battery immediately.

The meter is also provided with BEPS (Battery Error Preventing System), which avoids any erroneous reading due to low battery level by warning the user with the "Eb" message on the LCD and switching the meter off when the battery is completely rundown.

Remove the cover on the back of the meter and replace the battery with a new one, while paying attention to its polarity.

Replacement must only take place in a nonhazardous area using an alkaline 9V battery.



## pH CALIBRATION

- Connect the electrode and switch the meter ON.
- Enter the calibration mode by pressing the CAL button. The pH tag starts blinking on the LCD.
- For a **single-point calibration**, place the electrode in any buffer, eg. pH 4.01, 7.01 or 10.01. The meter will automatically recognize and display the buffer value.
- When the pH tag stops blinking, press the SET/HOLD button to confirm the calibration point.

**Note:** If the pH 7.01 buffer was used, press the SET/HOLD button again to exit the Calibration mode; the first calibration point is stored and the meter returns to the measurement mode. Otherwise, if a different buffer was used, the meter will automatically return to normal mode.

- For a **two-point calibration**, place the electrode in pH 7.01 buffer. The meter will automatically recognize and display the buffer value.
- When the pH tag stops blinking, press the SET/HOLD button to confirm and store the first calibration point.
- The meter will then ask for the second buffer. Place the electrode in pH 4.01 (or pH 10.01) buffer.
- When also this buffer is recognized (the pH tag stops blinking), press the SET/HOLD button to confirm and store the second calibration point; the meter will return to normal mode.

**Note:** If a solution with wrong pH value is used as buffer for calibration, the LCD will display the "Ec" message.



**Note:** **To exit the Calibration mode**, press the CAL button at any time. The meter will display dashes and then return to normal mode.

**Note:** **To reset to the default values**, after entering the Calibration mode and before the first calibration point is confirmed (pH tag is blinking), press and hold the SET/HOLD key, and then press the CAL button.

The meter displays "CLr" for a few seconds and then return to normal mode.



**Note:** For better accuracy it is recommended to carry out a 2-point calibration procedure.

## CE DECLARATION OF CONFORMITY



DECLARATION OF CONFORMITY

We

Hanna Instruments Italia Srl  
via E. Fermi, 10  
35030 Sarmeola di Rubano - PD  
ITALY

herewith certify that the pH/temperature meter:

HI 9214

has been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard  
IEC 61000-4-2: Electrostatic Discharge  
IEC 61000-4-3: RF Radiated

EN 50081-1: Electromagnetic Compatibility - Generic Emission Standard  
EN 55022: Radiated, Class B

EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 29/10/2002

*A. Marsilio*  
A. Marsilio - Technical Director  
On behalf of  
Hanna Instruments S.r.l.

### Recommendations for Users

Before using this product, make sure that it is entirely suitable for the environment in which they are used.

Operation of this instrument in residential area could cause unacceptable interferences to radio and TV equipments, requiring the operator to take all necessary steps to correct interferences.

The glass bulb at the end of the electrode is sensitive to electrostatic discharges. Avoid touching this glass bulb at all time. During calibration of instruments, ESD wrist straps should be worn to avoid possible damage to the electrode by electrostatic discharge.

Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance.

To avoid electrical shock, do not use these instruments when voltages at the measurement surface exceed 24 Vac or 60 Vdc.

To avoid damages or burns, do not perform any measurement in microwave ovens.