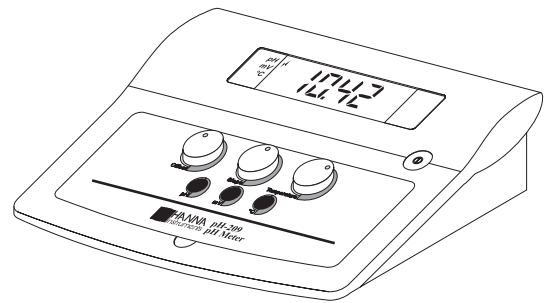


Instruction Manual

pH 209-209R

Bench-top pH Meter



 **HANNA**
instruments
<http://www.hannacan.com>

CE

*This Instrument is in Compliance
with the CE Directives*

Dear Customer,

Thank you for choosing a Hanna Instruments Product.

Please read this instruction manual carefully before using the instrument.

This manual will provide you with all the necessary information for the correct use of the instrument, as well as a precise idea of its versatility in a wide range of applications.

This instrument is in compliance with **CE** directives.

TABLE OF CONTENTS

| | |
|--|----|
| PRELIMINARY EXAMINATION | 3 |
| GENERAL DESCRIPTION | 3 |
| FUNCTIONAL DESCRIPTION | 4 |
| SPECIFICATIONS | 5 |
| OPERATIONAL GUIDE | 6 |
| PH CALIBRATION | 8 |
| PH VALUES AT VARIOUS TEMPERATURES | 10 |
| ELECTRODE CONDITIONING & MAINTENANCE | 11 |
| TEMPERATURE-RESISTANCE CORRELATION FOR HANNA pH SENSITIVE GLASS | 14 |
| ACCESSORIES | 15 |
| ELECTRODE APPLICATION REFERENCE GUIDE | 21 |
| WARRANTY | 22 |
| CE DECLARATION OF CONFORMITY | 23 |



PRELIMINARY EXAMINATION

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

Each meter is supplied complete with:

- **HI 1332B** plastic-body combination double-junction refillable pH electrode with BNC connector and 1m (3.3') cable;
- Instruction Manual;
- 12VDC adapter (HI710005 or HI710006);

Note: Save all packing material until you are sure that the instrument functions correctly. All defective items must be returned in the original packing with the supplied accessories.

GENERAL DESCRIPTION

pH 209 bench-top pH meter is designed for simplicity of use.

It features a large easy-to-read liquid crystal display (LCD) and user friendly keyboard.

The pH calibration is made simple through the easy-to-operate front panel knobs for offset and slope adjustment.

A front knob is provided for easy manual temperature compensation of the pH reading.

pH 209 can also measure ion concentration (ISE) and ORP (Oxidation Reduction Potential) in the mV range.

The range selection (pH, mV or °C for temperature compensation) is made simple through the front membrane keyboard.

The large LCD is provided with arrows that quickly and clearly indicate the selected range.

It is also available the model **pH209R** with recorder output feature.

ORP PRETREATMENT SOLUTIONS

HI 7091L Reducing Pretreatment Solution, 460 mL

HI 7092L Oxidizing Pretreatment Solution, 460 mL

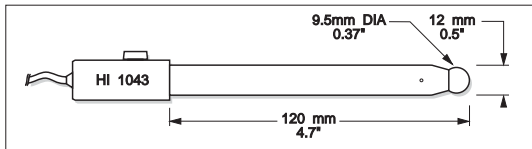
pH ELECTRODES

All electrodes part numbers ending in B are supplied with a BNC connector and 1 m (3.3') cable.



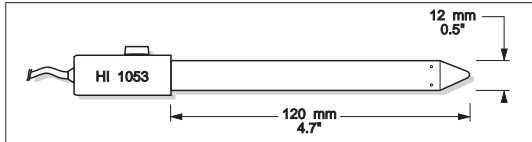
HI 1043B

Glass-body, double junction, refillable, combination pH electrode. Use: strong acid/alkali.



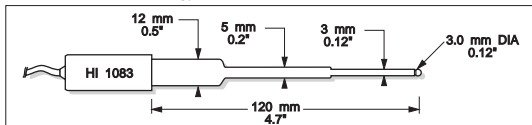
HI 1053B

Glass-body, triple ceramic, conic shape, refillable, combination pH electrode. Use: emulsions.



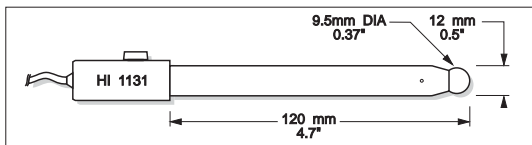
HI 1083B

Glass-body, micro, Viscolene, non-refillable, combination pH electrode. Use: biotechnology, micro titration.



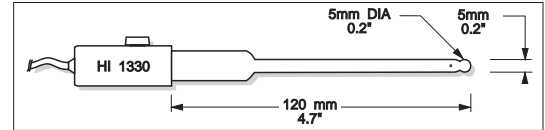
HI 1131B

Glass-body, single junction, refillable, combination pH electrode. Use: general purpose.



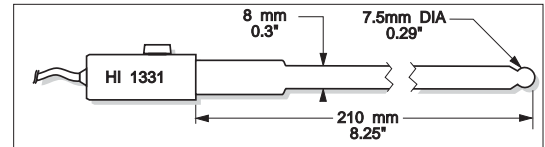
HI 1330B

Glass-body, semimicro, single junction, refillable, combination pH electrode. Use: laboratory, vials.



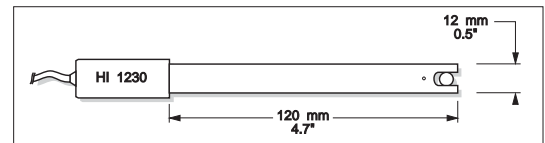
HI 1331B

Glass-body, semimicro, single junction, refillable, combination pH electrode. Use: flasks.



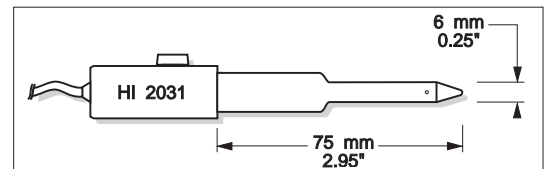
HI 1230B

Plastic-body (Ultem®), double junction, gel-filled, combination pH electrode. Use: general, field.



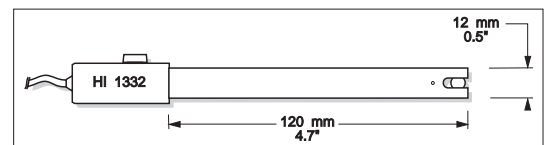
HI 2031B

Glass-body, semimicro, conic, refillable, combination pH electrode. Use: semisolid products.



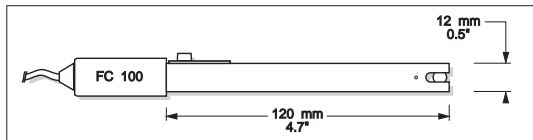
HI 1332B

Plastic-body (Ultem®), double junction, refillable, combination pH electrode. Use: general purpose.



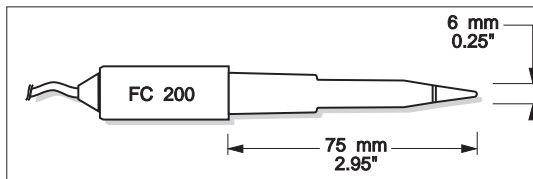
FC 100B

Plastic-body (Kynar®), double junction, refillable, combination pH electrode. Use: general purpose for food industry.



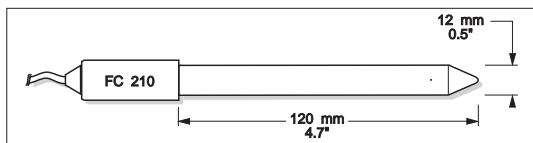
FC 200B

Plastic-body (Kynar®), open junction, conic, Viscolene, non-refillable, combination pH electrode. Use: meat & cheese.



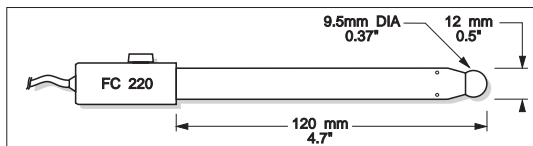
FC 210B

Glass-body, double junction, conic, Viscolene, non-refillable, combination pH electrode. Use: milk, yogurt.



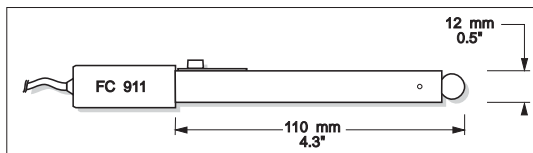
FC 220B

Glass-body, triple-ceramic, single junction, refillable, combination pH electrode. Use: food processing.



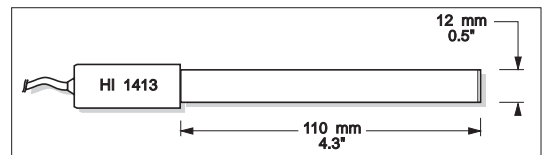
FC 911B

Plastic-body (Kynar®), double junction, refillable with built-in amplifier, combination pH electrode. Use: very high humidity.



HI 1413B

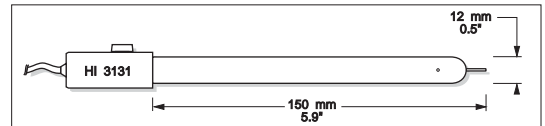
Glass-body, single junction, flat tip, Viscolene, non-refillable, combination pH electrode. Use: surface measurement.



ORP ELECTRODES

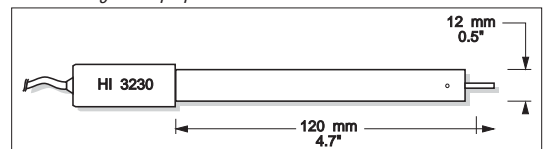
HI 3131B

Glass-body, refillable, combination platinum ORP electrode. Use: titration.



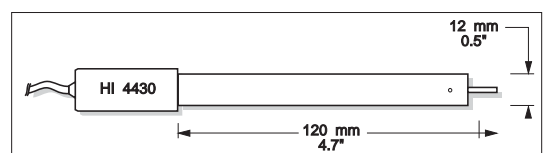
HI 3230B

Plastic-body (Ultem®), gel-filled, combination platinum ORP electrode. Use: general purpose.



HI 4430B

Plastic-body (Ultem®), gel-filled, combination gold ORP electrode. Use: general purpose.



Ultem® is registered Trademark of "General Electrics Co."
Kynar® is registered Trademark of "Pennwalt Corp."

WARRANTY

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

Damage 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 shipping costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase.

All rights are reserved. Reproduction in whole or in part is prohibited without the written consent of the copyright owner, Hanna Instruments Inc., 584 Park East Drive, Woonsocket, Rhode Island, 02895, USA.

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

Recommendations for Users

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

Operation of this instrument in residential area could cause unacceptable interferences to radio and TV equipment, 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 times.

During calibration of instruments, ESD wrist straps should be worn to avoid possible damage to the electrode by electrostatic discharge.

To maintain the EMC performance of this equipment, the recommended cables noted in the user's manual must be used.

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

To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24VAC or 60VDC.

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

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 bench-top pH meter

pH 209

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 normatives:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 801-2 Electrostatic Discharge
IEC 801-3 RF Radiated
IEC 801-4 Fast Transient

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

EN61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 26-3-1999


P. Cesa - Technical Director
On behalf of
Hanna Instruments S.r.l.



DECLARATION OF CONFORMITY

We

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

herewith certify that the bench-top pH meter

pH 209R

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 normatives:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 801-2 Electrostatic Discharge
IEC 801-3 RF Radiated
IEC 801-4 Fast Transient

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

EN61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 27-3-2001


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

