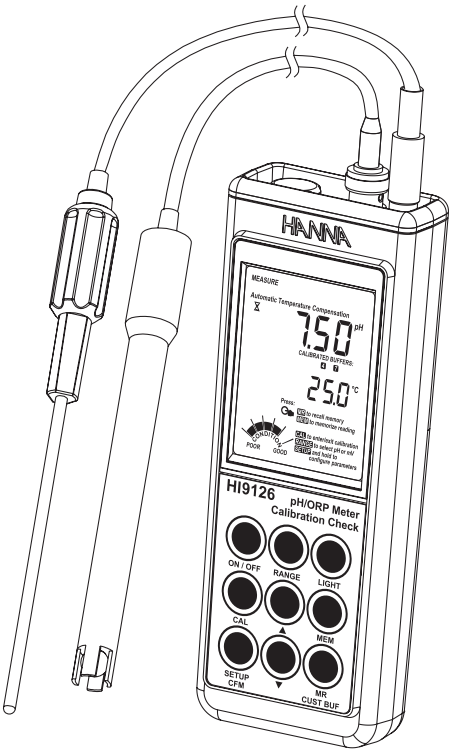
Instruction Manual

HI9126
Calibration Check Waterproof pH/mV/°C Meter



HANNA® instruments

www.hannainst.com

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 the necessary information for correct use of the instrument, as well as a precise idea of its versatility.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com or view our worldwide contact list at www.hannainst.com.

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PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it to make sure that no damage has occurred during shipping. If there is any damage, please contact your local Hanna Instruments Office.

Each meter is supplied with:

- **HI1230B** combination double-junction, gel pH electrode
- **HI7662** stainless steel temperature probe with 1 m (3.3") cable
- **pH 4.01 & pH 7.01** buffer solutions, 20 mL sachet
- **HI700661** electrode cleaning solution
- 100 mL plastic beaker
- 1.5V AAA Batteries (3 pcs.)
- Instruction manual
- Rugged carrying case

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

HI9126 is a state-of-the-art waterproof, heavy-duty pH meter designed to provide laboratory results and accuracy under harsh industrial conditions.

A large multil-level LCD, with clear indications related to the electrode and instrument status, pH and temperature displayed simultaneously, and user friendly graphic symbols during calibration.

This meter is provided with a series of new diagnostic features which add an entirely new dimension to pH measurement, by allowing the user to dramatically improve the reliability of the measurement:

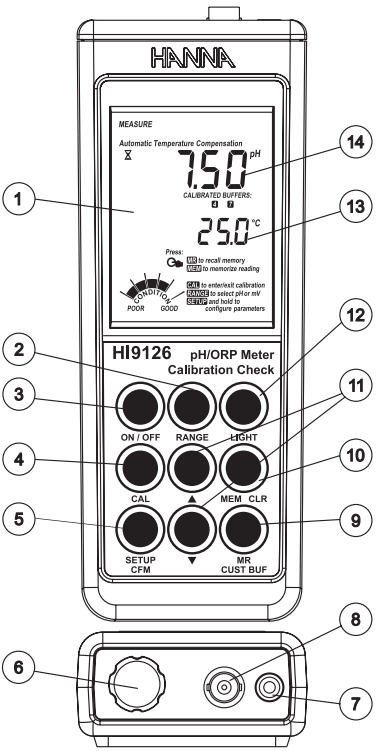
- 7 memorized buffers (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) for calibration
- Custom calibration (up to two custom buffers)
- Messages on the LCD to make the calibration easy and accurate
- Diagnostic features to alert the user when the electrode needs cleaning
- Monitoring of the electrode aging
- User-selectable "calibration time-out" to remind you when a new calibration is necessary

HI9126 can also measure for Oxidation Reduction Potential in the mV range with a resolution of 0.1 mV.

It offers an extended temperature range from:

–20 °C (–4 °F) to 120 °C (248 °F).

FUNCTIONAL DESCRIPTION



1) Liquid Crystal Display (LCD).
2) **RANGE** key, to select pH or mV.
3) **ON/OFF** key, to turn the meter ON and OFF.
4) **CAL** key, to enter or exit calibration mode.
5) **SETUP/CFM** key, to enter SETUP mode or to confirm calibration.
6) Battery compartment cap.
7) Temperature probe socket.
8) BNC electrode connector.
9) **MR/CUST BUF** key, to recall the stored value from memory or to enter custom buffer values during calibration.
10) **MEM/CLR** key, to store the reading in memory or to clear calibration.
11) ▲ and ▼ keys, for manual temperature setting, entering menu parameters or changing buffer value.
12) **LIGHT** key, toggle to switch the display backlight on and off.
13) Secondary display.
14) Primary display.

SPECIFICATIONS

Range	–2.00 to 16.00 pH ±699.9 mV / ±1999 mV -20.0 to 120.0 °C (–4.0 to 248.0 °F)
Resolution	0.01 pH 0.1 mV / 1 mV 0.1 °C (0.1 °F)
Accuracy @ 20 °C / 68 °F	±0.01 pH ±0.2 mV / ±1 mV ±0.4 °C (±0.8 °F) (excluding probe error)
Typical EMC Deviation	±0.02 pH ±0.2 mV/ ±1 mV ±0.4 °C (±0.8 °F)
pH Calibration	1 or 2-point, with 7 memorized buffers (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) and 2 custom buffers
Offset Calibration	±1 pH
Slope Calibration	From 80 to 108%
Temperature Compensation	Automatic, from –20.0 to 120.0 °C (–4.0 to 248.0 °F) or manual without temperature probe
pH Electrode	HI1230B (included)
Temperature Probe	HI7662 (included)
Input Impedance	10^{12} ohms
Battery Type & Life	3 x 1.5V AAA size batteries approx. 200 hours of continuous use without backlight (50 hours with backlight)
Auto-off	User selectable: 20 minutes or disabled
Dimensions	185 x 72 x 36 mm (7.3 x 2.8 x 1.4")
Weight	300 g (10.6 oz.)
Environment	0 – 50 °C (32 – 122 °F) max RH 100%
Warranty	2 years

OPERATIONAL GUIDE

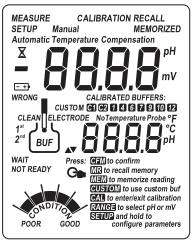
INITIAL PREPARATION

The meter is supplied with batteries (for details see page 19).

To prepare the instrument for use, connect the pH electrode and the temperature probe to the BNC and temperature sockets on the top of the instrument. The temperature probe can be used independently to take temperature measurements, or it can be used in conjunction with the pH electrode to utilize the meter's Automatic Temperature Compensation (ATC) mode. If the probe is disconnected, temperature can also be set manually with the **ARROW** keys.

Turn the instrument ON by pressing **ON/OFF**.

At start-up the display will show all LCD segments and then the battery percentage while the instrument performs a self check (or as long as the button is held).



The meter will automatically enter measurement mode.

After measurement switch the meter off. Clean the electrode and store it with a few drops of **HI70300** storage solution in the protective cap.

To save the batteries, the auto-off feature turns the meter off after 20 minutes (no button pressed). To disable this feature, see "Setup Menu" section on page 16.

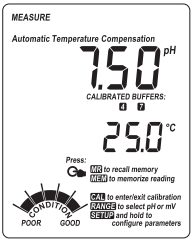
pH MEASUREMENTS

To take a pH measurement remove the electrode protective cap and submerse the electrode and the temperature probe 3 cm (1¼") into the sample and stir gently.

If necessary, press the **RANGE** key until the display shows pH mode.

Allow time for the reading to stabilize.

The LCD will show the pH measurement and the temperature of the sample.



In order to take more accurate pH measurements, make sure that the instrument is calibrated (see page 10 for details).

The glass bulb and the junction on your electrode should always be moist, never allow it to dry out.

If several measurements are taken successively in different samples, rinse the electrode thoroughly with deionized or tap water and a small amount of the sample to be measured.

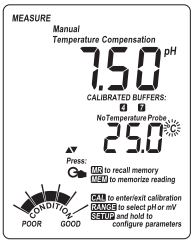
The pH reading is directly affected by temperature. In order for the meter to measure the pH accurately, temperature must be compensated for. If the sample temperature is different from the temperature at which the pH electrode was kept, allow a few minutes for thermal equilibration.

To use the meter's Automatic Temperature Compensation feature, submerse the temperature probe into the sample as close to the electrode as possible and wait for a few minutes.

<u>If manual temperature compensation is desired the temperature probe must be disconnected from the instrument</u>.

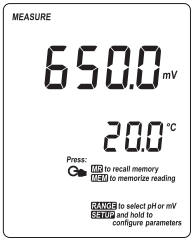
The display will show the default temperature of 25 °C, or the last temperature set the "°C" (or "°F") indicator will blink.

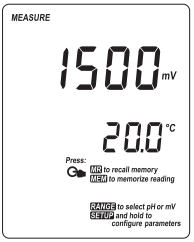
The temperature can now be adjusted with the **ARROW** keys.



ORP MEASUREMENTS

To perform ORP measurements, connect an optional ORP electrode (see "Accessories" section) to the meter and turn it ON.
If necessary, enter the "**mV**" mode by pressing **RANGE**.
Submerse the ORP electrode 3 cm ($1^1/_4$") into the sample to be tested and wait for the reading to stabilize.
Measurements within the ±699.9 mV range are displayed with 0.1 mV resolution, while outside this range the resolution is 1 mV.





The ATC (or MTC) key is turned off because the mV readings are not temperature compensated.
For accurate ORP measurements, the surface of the electrode must be clean and smooth. Pretreatment solutions are available to condition the electrode and improve the response time (see "Accessories" section).

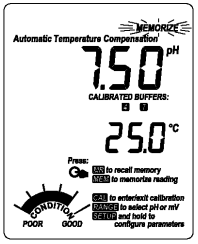
Notes:

- When the reading is out of range, the display will flash the closest full-scale value.
- If using a pH electrode while in mV mode, the meter will measure the mV generated by the pH electrode.

MEM & MR FUNCTIONS

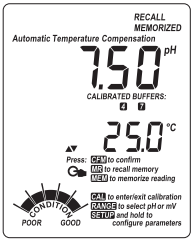
Pressing the MEM key will memorize the reading on the display and store it in the internal memory. The pH (mV) and temperature, electrode condition and the buffers used for calibration will be stored.
The "**MEMORIZE**" tag blinks and the display remains frozen until the **MEM** key is pressed again.

Note: While in MEM mode, the user can switch between pH and mV by pressing the **RANGE** key.



A stored value can be recalled by pressing MR: the display will show the memorized reading and the "**RECALL MEMORIZED**" tag, as long as the **MR** key is pressed.

Note: MR will only display the range that was active when **MEM** was pressed.



BACKLIGHT FEATURE

The meter is provided with a Backlight feature, which can be easily accessed through the **LIGHT** key.

Note: The backlight automatically shuts off after approximately 1 minute of nonuse.

pH CALIBRATION

It is recommended to calibrate the instrument frequently, if high accuracy is required. The instrument should be recalibrated:

- Whenever the pH electrode is replaced.
- At least once a week.
- After testing aggressive chemicals.
- When extreme accuracy is required.
- When the calibration time-out is expired (if feature is enabled).

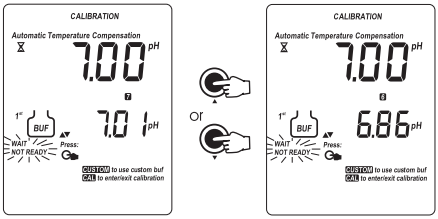
PROCEDURE

The meter offers a choice of 7 memorized buffers (1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45 pH) and two user defined values, C1 and C2 (see "Custom Buffer Selection" section on page 12 for details).

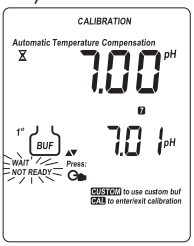
- Pour a small quantity of selected buffer solutions into clean beakers. For accurate calibration use two beakers for each buffer solution, the first one for rinsing the electrode and the second one for calibration.
- Remove the protective cap and rinse the electrode with some of the buffer solution to be used for the first calibration point.

TWO-POINT CALIBRATION

- Press the **CAL** key. The "**CAL**" and "BUF 1" indicators will be displayed. The secondary LCD will display buffer "**7.01**". If a different calibration buffer is desired (e.g. "**6.86**"), use the **ARROW** keys to change the displayed value.
- Submerse the electrode approximately 3 cm (1¼") into the solution, place the temperature probe as close as possible to the electrode and stir gently.

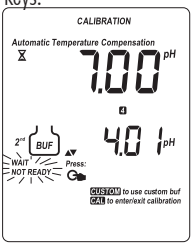


- The LCD will flash "**WAIT NOT READY**" for 12 seconds, then: if the reading is not close to the selected buffer, "**WRONG** BUF" and "**WRONG** pH" will blink alternatively; if it is close to the selected buffer the meter will advise the user with an audible signal (if enabled) when the reading becomes stable and the display will change to "**READY**" and blinking "**CFM**".



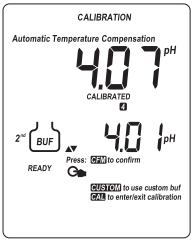
- Press the **CFM** key to confirm the calibration: the meter stores the first calibration point; the primary LCD will show the calibrated reading, while the secondary LCD will show the second buffer to be used for calibration ("**pH 4.01**").

  If you're going to calibrate with a different buffer, select the desired value by pressing the arrow keys.

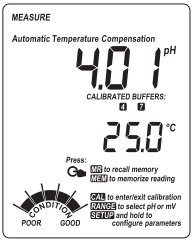


Note: The meter automatically skips the buffer used for the first calibration point. A difference of at least 1.5 pH unit is required between the two buffers: once calibrated at either pH 7.01 or 6.86, the instrument automatically ignores the other value for the second point (same for pH 10.01 and 9.18).

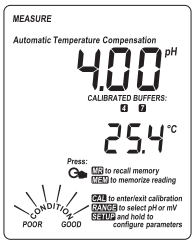
- Immerse electrode bulb approximately 3 cm (1 1/4") into the second buffer solution, place the temperature probe as close as possible to the electrode and stir gently.
- The LCD will flash "**WAIT NOT READY**" for several seconds, then:
  if the reading is not close to the selected buffer, "**WRONG** BUF" and "**WRONG** ▯" will blink alternatively;
  if it is close to the selected buffer the meter will advise the user with an audible signal (if enabled) when the reading becomes stable and the display will change to "**READY**" and blinking "**CFM**".



- Press the **CFM** key: the value is stored in memory and the meter returns to measurement mode. The tags corresponding to the buffers used for calibration and the "condition" bargraph (if enabled) will be light up.



Notes: During calibration, the secondary LCD shows the selected buffer value; press **RANGE** to display the buffer temperature.
To clear a previous calibration and return to the default values, press **CLR** at any time after entering the calibration mode. The LCD will show "**CLr CAL**" for one second, and then will return to normal measurement mode.
The LCD will show an empty bargraph to warn the user that the meter is not calibrated.



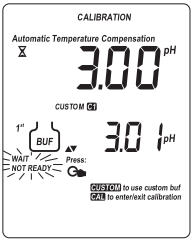
ONE-POINT CALIBRATION

For optimum accuracy it is always recommended to perform a two-point calibration, but for a faster operation it is also possible to carry out a single-point calibration.
pH 7.01 or pH 6.86 (NIST) are typically used, however the meter can be calibrated with any of the memorized calibration values.
After calibrating the first point (see two-point calibration), press the **CAL** key to end the calibration procedure.

Note: With one-point calibration electrode "condition" is not available and only the frame is shown. Calibration time-out is active.

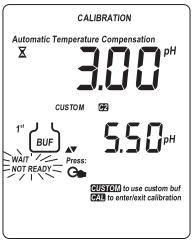
CUSTOM BUFFER SELECTION

- The meter allows the user to calibrate with custom buffers.
- To select a custom buffer press the **CUST BUF** key while in calibration mode. Use the arrow keys to set the desired value for C1 (a default of 7.00 or previously configured buffer appears).



Note: To increase the speed, continuously press the **ARROW** keys.

- Once the desired value is reached, press **CFM** to confirm the value. The meter will continue calibration as with memorized buffers.
- The meter will display "**C2**". Use the arrow keys to change the value of the second custom buffer, or press **CUST BUF** to select a memorized buffer.



EXPIRED CALIBRATION

The instrument has a real time clock (RTC), in order to monitor the time elapsed since the last pH calibration.

The real time clock is reset every time the meter is calibrated and the "expired calibration" status is triggered when the meter detects a calibration time-out. The **CAL** tag will start blinking to warn the user that the meter should be recalibrated.

The calibration time-out can be set (see "Setup menu" section on page 14) from 0 (function disabled) to 14 days.

For example, if a 4 days time-out has been selected the meter will issue the alarm exactly 4 days after the last calibration.

If the expiration value is changed (e.g. to 7 days), then the alarm will be immediately recalculated and appear 7 days after the last calibration.

Notes:

- When the meter is not calibrated or calibration is cleared (default values loaded) there is no "expired calibration", and the display always shows a blinking **CAL** tag.
- When an abnormal condition in the RTC is detected the meter forces the "expired calibration" status.

CONDITION

The display is provided with a 5-dot bargraph (unless disabled) which gives an indication of the electrode status after calibration:

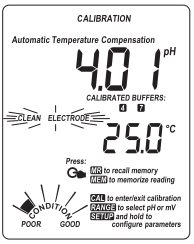
Bargraph indication		Condition value
All 5 dots steady		81 to 100% of life
4 dots steady		61 to 80%
3 dots steady		41 to 60%
2 dots steady		21 to 40%
1 dot steady		1 to 20%
1 dot blinking		0%
Only frame is ON		No info available

The "condition" bargraph remains active for 12 hours after calibration, then only the frame is shown.

Maintenance should be provided to the sensor when two or fewer dots are on the bargraph.

Note: When an abnormal condition in the RTC is detected, the "condition" is cleared and only the bargraph frame is shown on the display.

CLEAN ELECTRODE



Each time pH calibration is performed, the meter internally compares the new calibration with the one previously stored.

When this comparison indicates a significant difference, the "**CLEAN ELECTRODE**" message blinks on the LCD to advise the user that the pH electrode may need to be cleaned (see "Electrode Conditioning & Maintenance" section).

After cleaning, perform calibration.

Note: If the calibration data are cleared, the comparison is done with the default values.

pH BUFFER TEMPERATURE DEPENDENCE

The temperature has an effect on pH. The calibration buffer solutions are affected by temperature changes to a lesser degree than normal solutions. During calibration the instrument will automatically calibrate to the pH value corresponding to the measured or set temperature

TEMP		pH BUFFERS						
°C	°F	1.68	4.01	6.86	7.01	9.18	10.01	12.45
0	32	1.67	4.01	6.98	7.13	9.46	10.32	13.38
5	41	1.67	4.00	6.95	7.10	9.39	10.24	13.18
10	50	1.67	4.00	6.92	7.07	9.33	10.18	12.99
15	59	1.67	4.00	6.90	7.05	9.27	10.12	12.80
20	68	1.68	4.00	6.88	7.03	9.22	10.06	12.62
25	77	1.68	4.01	6.86	7.01	9.18	10.01	12.45
30	86	1.68	4.02	6.85	7.00	9.14	9.96	12.29
35	95	1.69	4.03	6.84	6.99	9.11	9.92	12.13
40	104	1.69	4.04	6.84	6.98	9.07	9.88	11.98
45	113	1.70	4.05	6.83	6.98	9.04	9.85	11.83
50	122	1.71	4.06	6.83	6.98	9.01	9.82	11.70
55	131	1.72	4.08	6.84	6.98	8.99	9.79	11.57
60	140	1.72	4.09	6.84	6.98	8.97	9.77	11.44
65	149	1.73	4.11	6.84	6.99	8.95	9.76	11.32
70	158	1.74	4.12	6.85	6.99	8.93	9.75	11.21
75	167	1.76	4.14	6.86	7.00	8.91	9.74	11.10
80	176	1.77	4.16	6.87	7.01	8.89	9.74	11.00
85	185	1.78	4.17	6.87	7.02	8.87	9.74	10.91
90	194	1.79	4.19	6.88	7.03	8.85	9.75	10.82
95	203	1.81	4.20	6.89	7.04	8.83	9.76	10.73

During calibration the instrument will display the pH buffer value at 25 °C. After calibration is completed the buffer should show the value at its temperature of measurement.

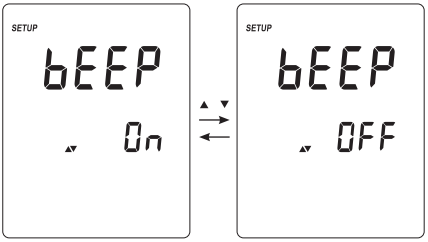
SETUP MENU

The instrument allows the user to configure several parameters through the Setup Menu.

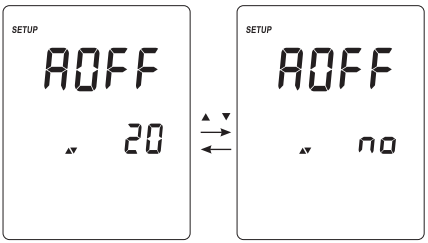
To enter the Setup Menu, while in measurement mode, press and hold the **SETUP** key for about 5 seconds.

Once the menu is entered, each parameter can be changed by using the arrow keys; then pressing the **CFM** key will confirm the value and scroll to the next parameter.

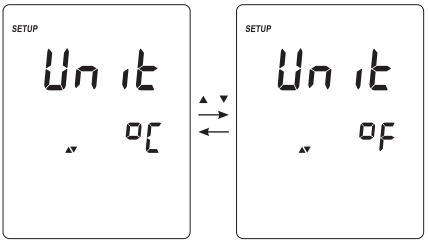
1. Audible signal: On (default) or Off



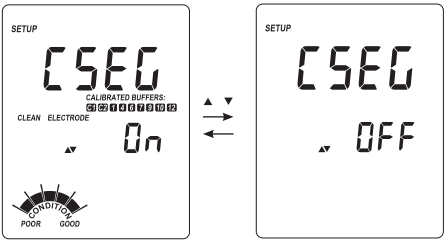
2. Auto-off feature: 20 minutes (default) or disabled



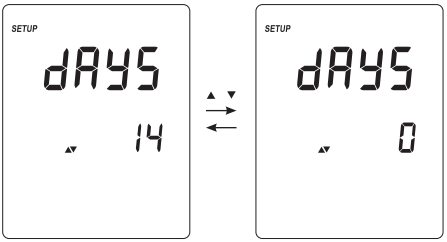
3. Temperature measure unit: ºC (default) or ºF



4. Calibration segments: On (default) or Off. This enables or disables the bargraph, the "**CLEAN ELECTRODE**" message and the buffer segments.



5. Calibration time-out: 1 (default) to 14 days or disabled (0 days) After the last parameter, press the **CFM** key to confirm the setting and return to measurement mode.



mV CALIBRATION

HI9126 has been precalibrated for mV range at the factory.

For optimum accuracy, it is recommended to recalibrate the meter for mV readings at least once a year. Contact your local Hanna Instruments Office for more information.

TEMPERATURE CALIBRATION

HI9126 has been precalibrated for temperature at the factory.

For optimum accuracy, it is recommended to recalibrate the meter for temperature at least once a year. Contact your local Hanna Instruments Office for more information.

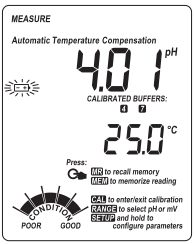
BATTERIES REPLACEMENT

The instrument is supplied with batteries. First time you start working with the instrument, insert the supplied batteries in the battery compartment observing the correct polarity (see page 20).

At start-up the battery percentage is displayed.

If the batteries become weak, the display will flash the battery symbol to advise the user that approximately 1 hour of working time remains.

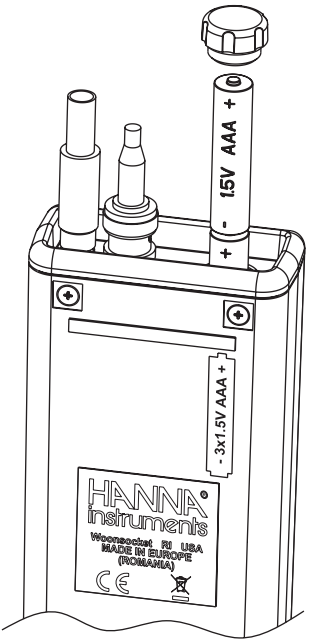
It is recommended to change the batteries as soon as the battery symbol appears blinking.



The meter is also provided with the BEPS (Battery Error Prevention System) feature which automatically turns the instrument off when the battery level is too low to ensure reliable readings. At start-up the display will show "**0 batt**" for few seconds, then the meter automatically turns off.

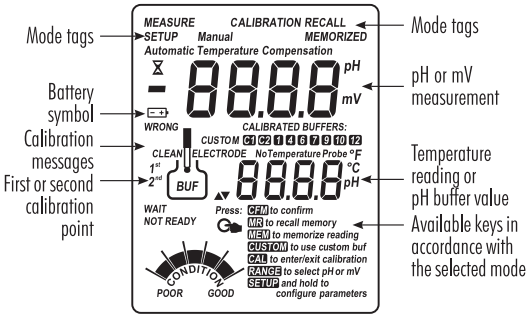
To replace the batteries, follow the next steps:

- Turn OFF the instrument.
- Open the battery compartment cap (located on the top of the instrument).
- Remove old batteries.
- Insert three new 1.5V AAA batteries in the battery compartment, observing the polarity on the rear of the instrument.
- Reattach the battery compartment cap.



LCD MESSAGE GUIDE

TAGS & SYMBOLS



- **Mode tags** light up for indicating the corresponding active mode, and blink for warning the user.

  SETUP on: setup menu mode has been entered.

  MEASURE on: measurement mode.

  CALIBRATION on: calibration mode has been entered.

  CALIBRATION blinking: user calibration has been removed.

  MEMORIZE on: measurement stored in the internal memory and frozen on the display

  RECALL MEMORIZED on: stored value recalled.

- Indication of **temperature compensation mode**:

  MTC for manual, **ATC** for automatic compensation.

- **Battery symbol blinking**: low battery condition. Batteries should be replaced.

- **Calibration messages**.

  WAIT NOT READY blinking: buffer has been recognized, but reading is not stable.

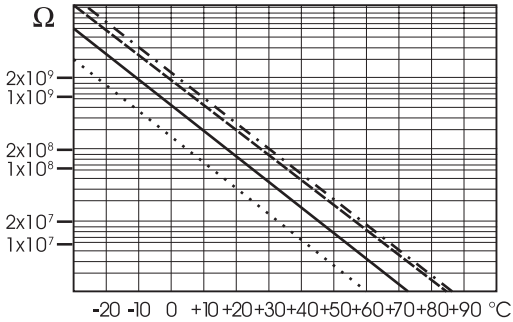
  READY on: buffer has been recognized and reading is stable.

  WRONG and **WRONG blinking** alternatively: wrong buffer, value not recognized.

  CLEAN ELECTRODE blinking: an abnormal difference between new and previous calibration has been detected. Electrode cleaning is suggested. Follow the cleaning procedure described in the "Electrode conditioning & maintenance" section. If the problem remains, check the buffer solutions.

TEMPERATURE CORRELATION FOR pH SENSITIVE GLASS

The resistance of glass electrodes partially depends on the temperature. The lower the temperature, the higher the resistance. It takes more time for the reading to stabilize if the resistance is higher. In addition, the response time will suffer to a greater degree at temperatures below 25 °C.



Since the resistance of the pH electrode is in the range of 50 – 200 Mohms, the current across the membrane is in the pico Ampere range. Large currents can disturb the calibration of the electrode for many hours.

Circumstances such as static discharges can be detrimental to a stable pH reading.

The pH electrode's life also depends on the temperature. Observe temperature specifications for pH sensor used. If constantly used at high temperatures, the electrode life is drastically reduced.

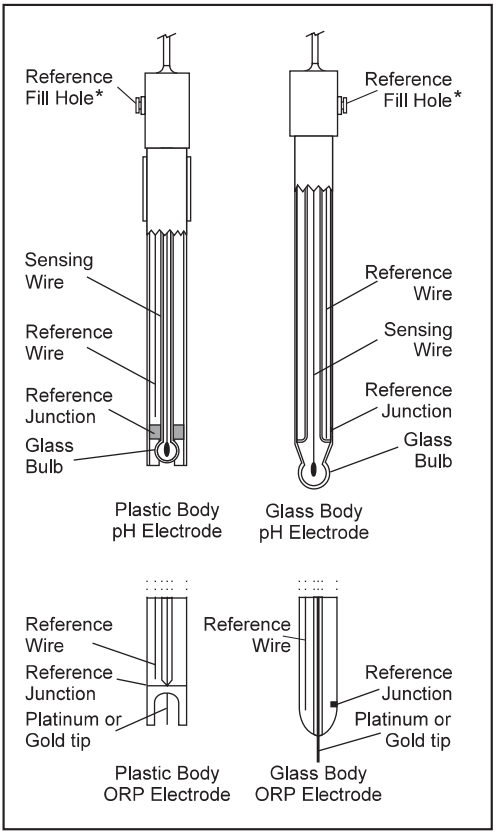
Typical Electrode Life

Ambient Temperature	1 – 3 years
90 °C	Less than 4 months
120 °C	Less than 1 month

Alkaline Error

High concentrations of sodium ions interfere with readings at elevated pH values. The pH at which the interference starts to be significant depends upon the composition of the glass. This interference is called alkaline error and causes the pH to be underestimated.

ELECTRODE CONDITIONING & MAINTENANCE



* Not present in gel electrodes.

PREPARATION PROCEDURE

Remove the electrode protective cap.
DO NOT BE ALARMED IF ANY SALT DEPOSITS ARE PRESENT. This is normal with electrodes and they will disappear when rinsed with water.
During transport tiny bubbles of air may have formed inside the glass bulb. The electrode cannot function properly under these conditions. These bubbles can be removed by "shaking down" the electrode as you would do with a glass thermometer.
If the bulb and/or junction are dry, soak the electrode in **HI70300** Storage Solution for at least one hour.

For refillable electrodes, if the refill solution (electrolyte) is more than 2½ cm (1") below the fill hole, add the appropriate Electrolyte Solution.

MEASUREMENT

Rinse the electrode tip with distilled water, immerse tip 3 cm (1¼") in the sample and stir gently for a few seconds.
For a faster response and to avoid cross contamination of the samples, rinse the electrode tip with the solution to be tested, before taking any measurements.

STORAGE PROCEDURE

To minimize clogging and ensure a quick response time, the glass bulb and the junction should always be kept moist.
When not in use, store it with a few drops of **HI70300** storage solution in the protective cap.
NEVER STORE THE ELECTRODE IN DISTILLED OR DEIONIZED WATER.

PERIODIC MAINTENANCE

Inspect electrode and cable. The cable must be intact. No cracks should be seen on the electrode stem or bulb. If any scratches or cracks are present, replace the electrode. Rinse off any salt deposits with water. Connectors must be perfectly clean and dry.

For refillable electrodes:

Refill the electrode with fresh electrolyte (see the electrode's specifications to select the correct refilling solution). Allow the electrode to stand upright for 1 hour. Follow the Storage Procedure above.

CLEANING PROCEDURE

- *General* Soak in Hanna Instruments **HI7061** General Cleaning Solution for approximately ½ hour.
- *Protein* Soak in Hanna Instruments **HI7073** Protein Cleaning Solution for 15 min.
- *Inorganic* Soak in Hanna Instruments **HI7074** Inorganic Cleaning Solution for 15 min.
- *Oil/grease* Rinse with Hanna Instruments **HI7077** Oil & Fat Cleaning Solution for 1 min.

IMPORTANT: After performing any of the cleaning procedures, rinse the electrode thoroughly with distilled water and soak it in **HI70300** Storage Solution for at least 1 hour before taking measurements.

TROUBLESHOOTING GUIDE

SYMPTOMS	PROBLEM	SOLUTION
Slow reponse/exces-sive drift. Clean Electrode prompt.	Dirty pH electrode.	The electrode needs to be clean. Follow the Cleaning Procedure on page 24.
Reading fluctuates up and down (noise).	Clogged/dirty junction. Low electrolyte level (refillable electrodes only).	Clean the electrode. Refill with fresh electrolyte (refillable electrodes only). Check cable and connector.
Display shows blinking full scale value in pH or mV.	Reading out of range.	Make sure the electrode is connected. Check that sample is within measurable range;Check electrolyte level and general electrode status.
Display shows "**CLEAN ELECTRODE**" blinking during calibration.	Difference between new and previous calibration has been detected.	Clean electrode and recali-brate. If the problem remains, check the buffer solutions.
Display shows blinking battery symbol.	Low battery level.	Replace the batteries.
Displays °C or °F with "**No Temperature Probe**" or 120° (or 248°) flashing.	Broken tempera-ture probe. Wrong temperature probe used.	Replace temperature probe or use manual (MTC).
"**WRONG** " alternates with "**WRONG** BUF".	Incorrect or contaminated buffer or defective sensor.	Check that buffer solution is correct and fresh.
Meter shuts off.	Dead batteries or Auto-off feature is enabled: in this case, meter shuts off after 20 min of non-use.	Replace the batteries. Press **ON/OFF**.
"**Er0**", "**Er1**", "**Er2**" message at start up.	EEPROM error.	Contact your local Hanna Instruments Office.

ACCESSORIES

pH CALIBRATION SOLUTIONS

HI70004P	pH 4.01 Buffer Solution, 20 mL sachet, 25 pcs.
HI70007P	pH 7.01 Buffer Solution, 20 mL sachet, 25 pcs.
HI70010P	pH 10.01 Buffer Solution, 20 mL sachet, 25 pcs.
HI7004L	pH 4.01 Buffer Solution, 500 mL bottle
HI7004M	pH 4.01 Buffer Solution, 230 mL bottle
HI7006L	pH 6.86 Buffer Solution, 500 mL bottle
HI7006M	pH 6.86 Buffer Solution, 230 mL bottle
HI7007M	pH 7.01 Buffer Solution, 500 mL bottle
HI7007M	pH 7.01 Buffer Solution, 230 mL bottle
HI7009L	pH 9.18 Buffer Solution, 500 mL bottle
HI7009M	pH 9.18 Buffer Solution, 230 mL bottle
HI7010L	pH 10.01 Buffer Solution, 500 mL bottle
HI7010M	pH 10.01 Buffer Solution, 230 mL bottle

ELECTRODE STORAGE SOLUTION

HI70300L	Storage Solution, 500 mL bottle
HI70300M	Storage Solution, 230 mL bottle

ELECTRODE CLEANING SOLUTIONS

HI70000P	Electrode Rinse Solution, 20 mL sachet, 25 pcs.
HI7061L	General Cleaning Solution, 500 mL bottle
HI7061M	General Cleaning Solution, 230 mL bottle
HI7073L	Protein Cleaning Solution, 500 mL bottle
HI7073M	Protein Cleaning Solution, 230 mL bottle
HI7074L	Inorganic Cleaning Solution, 500 mL bottle
HI7074M	Inorganic Cleaning Solution, 230 mL bottle
HI7077L	Oil & Fat Cleaning Solution, 500 mL bottle
HI7077M	Oil & Fat Cleaning Solution, 230 mL bottle

REFILLING ELECTROLYTE SOLUTIONS (50 mL, 4 pcs.)

HI7071	3.5M KCl + AgCl Electrolyte for single junction electrodes
HI7072	1M KNO_3 Electrolyte
HI7082	3.5M KCl Electrolyte for double junction electrodes
HI8093	1M KCl + AgCl Electrolyte

ORP PRETREATMENT SOLUTIONS

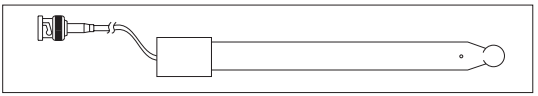
HI7091L	Reducing Pretreatment Solution, 500 mL bottle
HI7092L	Oxidizing Pretreatment Solution, 500 mL bottle
HI7092M	Oxidizing Pretreatment Solution, 230 mL bottle

ORP SOLUTIONS

HI7021L	Test Solution 240 mV, 500 mL bottle
HI7021M	Test Solution 240 mV, 230 mL bottle
HI7022L	Test Solution 470 mV, 500 mL bottle
HI7022M	Test Solution 470 mV, 230 mL bottle

pH ELECTRODES

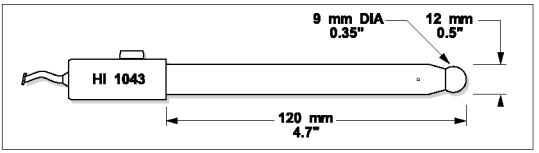
All electrodes part numbers ending in B are supplied with a BNC connector and 1 m (3.3') cable, as shown below:



HI1043B

Glass-body, double junction, refillable, combination **pH** electrode.

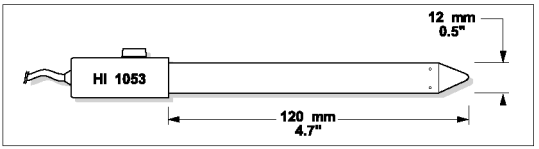
Use: strong acid/alkali.



HI1053B

Glass-body, triple ceramic, conic shape, refillable, double junction combination **pH** electrode.

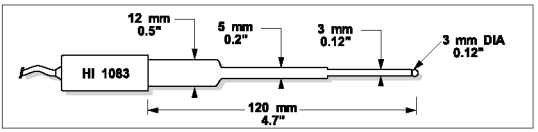
Use: emulsions.



HI1083B

Glass-body, micro, Viscolene, non-refillable, combination **pH** electrode.

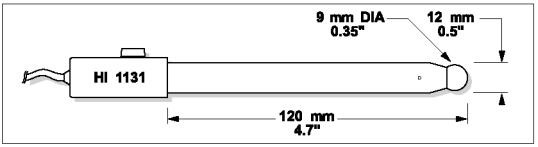
Use: biotechnology, micro titration.



HI1131B

Glass-body, double junction, refillable, combination **pH** electrode.

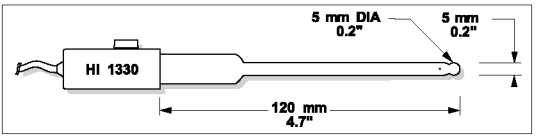
Use: general purpose.



HI1330B

Glass-body, semimicro, single junction, refillable, combination **pH** electrode.

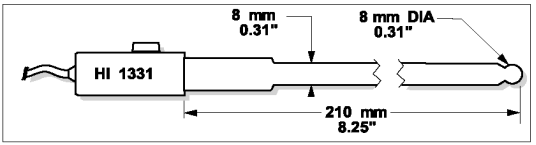
Use: laboratory, vials.



HI1331B

Glass-body, semimicro, single junction, refillable, combination **pH** electrode.

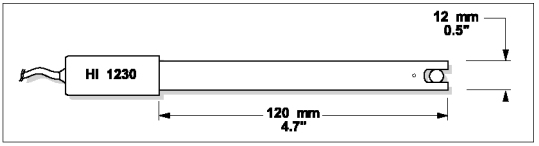
Use: flasks.



HI1230B

Plastic-body (PES), double junction, gel-filled, combination **pH** electrode.

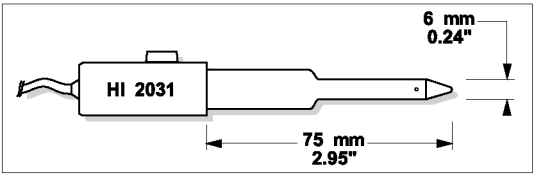
Use: general, field.



HI2031B

Glass-body, semimicro, conic, refillable, combination **pH** electrode.

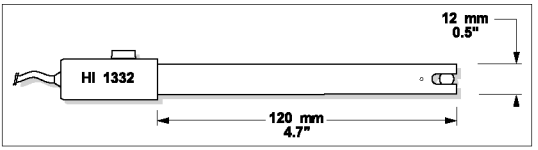
Use: semisolid products.



HI1332B

Plastic-body (PES), double junction, refillable, combination **pH** electrode.

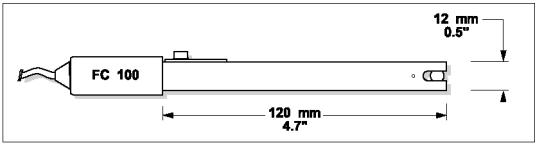
Use: general purpose.



FC100B

Plastic-body (**PVDF**), double junction, refillable, combination **pH** electrode.

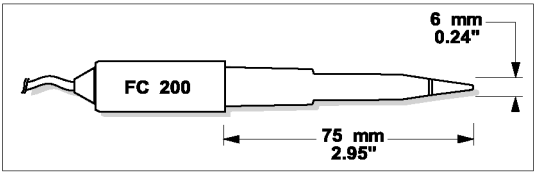
Use: general purpose for food industry.



FC200B

Plastic-body (**PVDF**), open junction, conic, Viscolene, non-refillable, combination **pH** electrode.

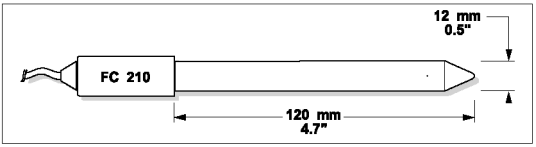
Use: meat & cheese.



FC210B

Glass-body, double junction, conic, Viscolene, non-refillable, combination **pH** electrode.

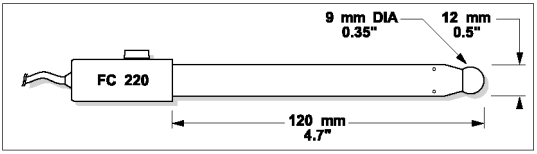
Use: milk, yogurt.



FC220B

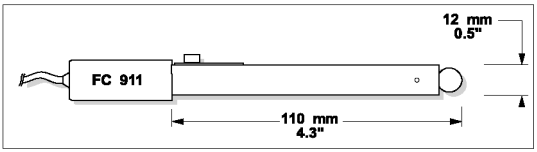
Glass-body, triple-ceramic, single junction, refillable, combination **pH** electrode.

Use: food processing.



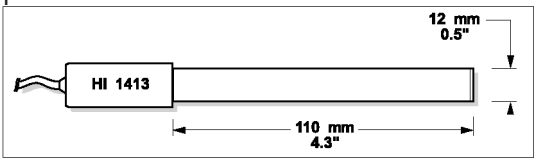
FC911B

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



HI1413B

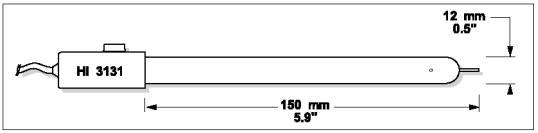
Glass-body, single junction, flat tip, Viscolene, non-refillable, combination **pH** electrode. Use: surface measurement.



ORP ELECTRODES

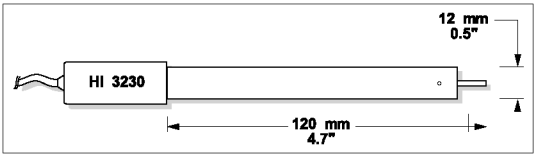
HI3131B

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



HI3230B

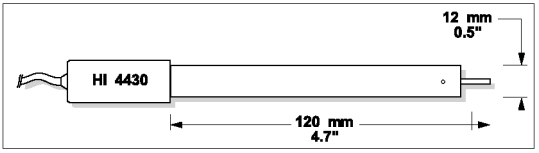
Plastic-body (**PES**), gel-filled, combination platinum **ORP** electrode. Use: general purpose.



HI4430B

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

Consult the Hanna Instruments General Catalog for a complete and wide selection of electrodes.



OTHER ACCESSORIES

HI721317	Rugged carrying case
HI740157	Plastic electrode refilling pipet (20 pcs.)
HI76405	Electrode holder
HI7662-T	Temperature probe with 1 m (3.3') screened cable
HI8427	pH and ORP electrode simulator with 1 m (3.3') coaxial cable ending in female BNC connectors
HI931001	pH and ORP electrode simulator with LCD and 1 m (3.3') coaxial cable ending in female BNC connectors

RECOMMENDATIONS FOR USERS

Before using these products, make sure they are entirely suitable for the environment in which they are used.

Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment, requiring the operator to follow all necessary steps to correct interferences.

The glass bulb at the end of the pH electrode is sensitive to electrostatic discharges. Avoid touching this glass bulb at all times.

During operation, ESD wrist straps should be worn to avoid possible damage to the electrode by electrostatic discharges.

Any variation introduced by the user to the supplied equipment may degrade the instruments' 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 damage or burns, do not perform any measurement in microwave ovens.

WARRANTY

HI9126 is warranted for two years against defects in workmanship and materials when used for its 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. Damage due to accidents, misuse, tampering or lack of prescribed maintenance is not covered.

If service is required, contact your local Hanna Instruments Office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instruments is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

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

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Printed in ROMANIA MAN9126 09/17