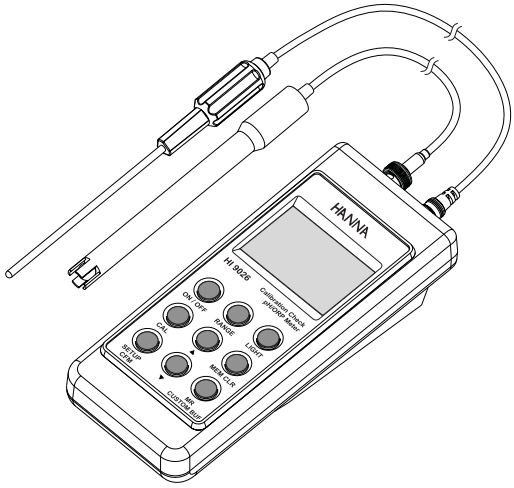
Instruction Manual

HI 9026V

Complete Portable Kit for pH, mV & Temperature Measurements in Wine and Must with Calibration-Check™



HANNA® instruments

www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna 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 more precise idea of its versatility.

If you need additional technical information, do not hesitate to e-mail us at **tech@hannainst.com** or contact the nearest technical office.

This instrument is in compliance with the CE directives.

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 six months**.

This warranty is limited to repair or replacement free of charge. Damages due to accidents, 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.

First obtain a Returned Goods Authorization number from the Customer Service department, then return the instrument with the Authorization # included along with shipment costs prepaid. If the repair is not covered by the warranty, you will be notified of the charges. When shipping any instrument, make sure it is properly packaged for complete protection.

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PRELIMINARY EXAMINATION

Remove the kit from the packing material and examine it to make sure that no damage has occurred during shipping. If there is any damage, notify your dealer or the nearest Hanna Customer Service Center.

The kit includes:

- **HI 9026** waterproof pH meter with Cal-Check™
- **HI 1048B** double junction, refillable pH electrode
- **HI 7662** stainless steel temperature probe
- pH 3.00 and pH 7.01 buffer solutions, 20 mL each
- **HI 700635** and **HI 700636** specific cleaning solutions, 20 mL each
- **HI 7082** electrode refilling solution (30 mL) and syringe
- 100 mL plastic beaker
- 1.5V AA alkaline batteries (4 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

HI 9026 is an advanced pH/ORP meter specifically designed to provide affordable and very precise results under harsh industrial conditions. The meter also features a backlit display for clear readings in the darkest environments.

You can choose from 7 memorized buffer values (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) for pH calibration. In addition, the user can program 2 custom buffer values, in order to best fit the characteristics of the sample.

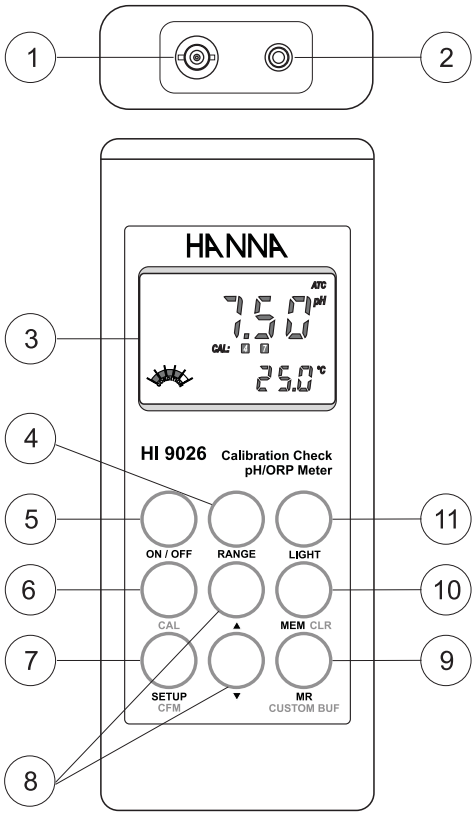
For example, if you are going to measure wine and must, you can enter the pH 3.00 buffer value for calibration.

When calibration is complete, the electrode condition is displayed, so the user can be sure the electrode is working properly or that it needs to be cleaned or replaced.

The supplied **HI 1048B** electrode features the innovative CPS™ (Clogging Prevention System), ideal for pH measurements in wine and must.

With proper electrodes, **HI 9026** can also measure ORP with a resolution up to 0.1 mV.

FUNCTIONAL DESCRIPTION



1) BNC plug for pH and ORP electrodes
2) Temperature probe socket
3) Liquid Crystal Display
4) RANGE key, to select pH or mV
5) ON/OFF key, to turn the meter ON and OFF
6) CAL key, to enter/exit calibration mode
7) SETUP/CFM key, to enter setup mode or to confirm calibration
8) UP and DOWN arrow keys, for manual temperature setting, entering menu parameters or changing buffer values
9) MR/CUSTOM BUF key, to recall stored value from memory or to enter custom buffer values
10) MEM/CLR key, to store the reading in memory or clear calibration
11) LIGHT key, to toggle display backlighting

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	±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
Temperature Compensation	Automatic or Manual
pH Calibration	Automatic, 1 or 2 point with 7 memorized buffer values (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 2 custom buffers
Offset Calibration	±1 pH
Slope Calibration	80 to 108 %
Temperature Compensation	Automatic, -20 to 120°C (-4 to 248°F), or manual without temperature probe
pH Electrode	**HI 1048B** (included)
Temperature Probe	**HI 7662** (included)
Input Impedance	1012 Ohm
Battery Type	4 x 1.5V AA, alkaline
Battery Life	Approx. 500 hours of continuous use (BL off)
Auto-off	User selectable: 20 minutes or disabled
Environment	0 to 50°C (32 to 122°F); RH max 100%
Dimensions (meter only)	196 x 80 x 60 mm (7.7 x 3.1 x 2.4")
Weight (meter only)	500 g (1.1 lb.)

OPERATIONAL GUIDE

INITIAL PREPARATION

The meter is supplied complete with batteries. Remove the back cover, unwrap the batteries and install them while paying attention to their polarity.

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 is used in conjunction with the pH electrode to utilize the meter's ATC capability, but it can also be used independently to take temperature measurements. If the probe is disconnected, temperature can also be set manually with the UP and DOWN arrow keys (see further on for details).

Turn the instrument ON by pressing ON/OFF.

At start-up the display will show all the used segments for a few seconds (or while the button is held), followed by the percentage indication of the remaining battery charge, then enters measurement mode.

After measurement switch the meter off, clean the electrode and store it with a few drops of **HI 70300** storage solution in the protection cap.

The auto-off feature turns the meter off after 20 minutes with no button pressed. To disable this feature, see “Setup Menu” section on page 9.

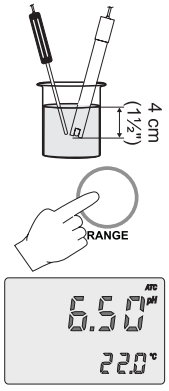
pH MEASUREMENTS

To take a pH measurement remove the electrode protective cap, unscrew the refilling hole cap, and submerge the tip (at least 4cm/1½") of the electrode and the temperature probe into the sample to be tested.

If necessary, press the RANGE key until the display changes to the pH mode.

Allow for the electrode to adjust and reading to stabilize (hourglass symbol turns off).

The LCD will show the pH measurement together with the temperature of the sample.



In order to take more accurate pH measurements, make sure that the instrument is calibrated (see “Calibration” section for details).

It is recommended that the electrode is always kept wet and rinsed thoroughly with the sample to be measured before use.

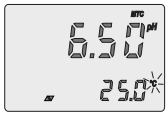
The pH reading is directly affected by temperature. In order for the meter to measure the pH accurately, temperature must be taken in consideration. If the sample temperature is quite different from the temperature at which the pH electrode was kept, allow a few minutes for a perfect thermal equilibrium between them.

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

If manual temperature compensation (MTC) is desired, the temperature probe must be disconnected from the instrument.

The display will show the default temperature of 25°C or the last temperature set with the "°C" indicator blinking.

The MTC tag and up & down arrows symbols light up on the LCD to indicate that the meter is in MTC mode and the arrow keys can be used to enter the desired temperature value.



Note: When in MTC the user can press and hold the arrow keys, and the meter will start incrementing/decrementing the temperature value. The meter keeps measuring and the display is updated every second.

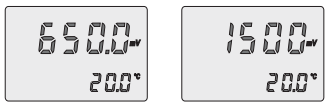
ORP MEASUREMENTS

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 until the display changes to mV.

Submerge the ORP electrode tip (4cm/1½") into the sample to be tested and allow a few minutes 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 automatically switches to 1 mV.



The ATC (or MTC) tag is turned off because 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 its response time (see “Accessories” section).

Notes:

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

MEM and MR FUNCTIONS

From normal measurement mode, pressing the MEM key will freeze readings on display and store into internal memory the current values (pH and temperature, or mV and temperature) together with "condition" and buffer segments. The MEM 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.

Stored value can be recalled by pressing MR: the display will show the value, together with the RCL & MEM tags, as long as the MR key is pressed.

Note: Pressing MR, only the range that was active at the time MEM was pressed is shown.

BACKLIGHT FEATURE

The meter is provided with a Backlight feature, which can be easily toggled on and off through the keyboard by pressing the LIGHT key.

Note: The backlight automatically shuts off after approximately 1 minute with no buttons pressed.

SETUP MENU

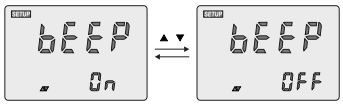
The instrument allows the user to program several parameters though a Setup Menu.

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

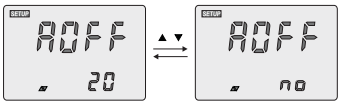
Once entered the Menu, each parameter can be changed by using the arrow keys; then pressing the CFM key will confirm the value and scroll to the next parameter.

The sequence of programmable parameters is as follows:

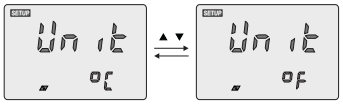
1. Acoustic signal: On (default) or Off



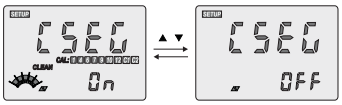
2. Auto-off feature: 20 minutes (default) or disabled



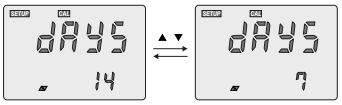
3. Temperature measure unit: °C (default) or °F



4. Calibration segments: On (default) or Off



5. Calibration time-out: 1 (default) to 14 days or disabled (0 days)



After setting the last parameter, pressing the CFM key will confirm the value and return to normal measurement mode.

CALIBRATION

HI 9026 is factory calibrated for ORP and temperature ranges. If recalibration is needed, please contact your dealer or the nearest Hanna Service Center.

pH CALIBRATION

It is recommended to calibrate the instrument frequently, especially if high accuracy is required.

The pH range should be recalibrated whenever the pH electrode is replaced, when the calibration time-out is expired (if feature is enabled), and at least once a month.

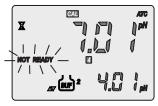
The meter offers a choice of 7 memorized buffers (1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45 pH) and also allows the user to enter two more pH values for calibration, C1 and C2 (see "Custom Buffer Selection" section on page 12 for details).

- Pour small quantities 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

- Enter the calibration mode by pressing the CAL key, then select the first desired buffer with the arrow keys (standard memorized values) and/or the CUSTOM BUF key (custom values).
- Submerge the electrode approximately 4 cm (1½") into the solution, place the temperature probe as close as possible to the electrode and stir gently.
- The LCD will flash "NOT READY" for 12 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 acoustic signal (if enabled) when the measure becomes stable and the display will change to "READY" and blinking "CFM".

- Press CFM to confirm the calibration: the meter stores the first calibration point; the primary LCD will show the first buffer value, 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.

- Submerge the electrode approximately 4 cm (1½") into the second buffer solution, place the temperature probe as close as possible to the electrode and stir gently.
- The LCD will flash "NOT READY" for 12 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 acoustic signal (if enabled) when the measure 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 the normal mode. The tags corresponding to the buffers used for calibration will light up together with the "condition" bargraph.

Note: The meter automatically skips the buffer used for the first calibration point to avoid erroneous procedure. A difference of at least 1.5 pH unit is required between the two buffers used for the offset and slope calibration: 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).

Note: During calibration, the secondary LCD shows the selected buffer value; press RANGE to display the buffer temperature.

Note: 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 returns to normal measurement mode. The LCD will show an empty bargraph and a blinking CAL tag 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 procedure.

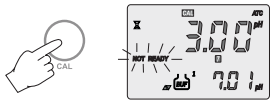
Buffers at pH 7.01 or pH 6.86 (NIST) are the most appropriate for this purpose, even though meters can be calibrated with any of the memorized calibration values.

After calibrating the first point (see above), press the CAL key to end the calibration procedure.

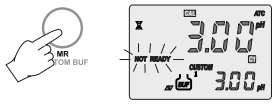
Note: With one-point calibration there is not "Condition" and only the frame is shown. Calibration time-out is active.

CUSTOM BUFFER SELECTION

- For setting the custom buffer values, from pH mode press the CAL key: the meter will start from pH 7.01 buffer.



- Press the CUSTOM BUF key and use arrows for selecting the desired value for C1.



Note: To increase the speed, keep pressed the UP or DOWN arrow key.

- Press again the CUSTOM BUF key to store the first custom buffer and scroll to the second one. Enter C2 with the arrow keys, then press again CUSTOM BUF and the meter will return to the standard buffers mode

For pH measurements of wine and must, it is recommended to set the pH 3.00 custom buffer value.

EXPIRED CALIBRATION

The instrument is provided with 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 at page 9) from 0 (function disabled) to 14 days.
For example, if a 4 days time-out has been selected the meter would issue the alarm exactly 4 days after the last calibration.
However, if at any moment 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 the feature is disabled) which gives indications about the electrode status after calibration as follows:

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.

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

CLEAN ELECTRODE

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

When this comparison indicates a significant difference, the CLEAN message blinks on the LCD to advise the user that the pH electrode may need to be cleaned (see "Electrode 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

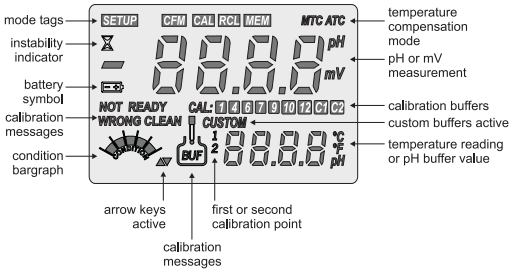
pH readings are strongly affected by temperature. The calibration buffer solutions are affected by temperature changes to a lesser degree than normal solutions.

For manual temperature calibration please refer to the following chart.

TEMP		pH BUFFER VALUES							
°C	°F	1.68	3.00	4.01	6.86	7.01	9.18	10.01	12.45
0	32	1.67	3.07	4.00	6.98	7.13	9.46	10.32	13.38
5	41	1.67	3.05	4.00	6.95	7.10	9.39	10.25	13.18
10	50	1.67	3.03	4.00	6.92	7.07	9.33	10.18	12.99
15	59	1.67	3.02	4.00	6.90	7.05	9.27	10.12	12.80
20	68	1.67	3.00	4.00	6.88	7.03	9.22	10.06	12.62
25	77	1.68	3.00	4.01	6.86	7.01	9.18	10.01	12.45
30	86	1.68	3.00	4.02	6.85	7.00	9.14	9.96	12.29
35	95	1.69	3.00	4.03	6.84	6.99	9.11	9.92	12.13
40	104	1.69	2.99	4.04	6.84	6.98	9.07	9.88	11.98
45	113	1.70	2.99	4.05	6.83	6.98	9.04	9.85	11.83
50	122	1.71	2.99	4.06	6.83	6.98	9.01	9.82	11.70
55	131	1.72	2.99	4.08	6.84	6.98	8.99	9.79	11.57
60	140	1.72	2.99	4.09	6.84	6.98	8.97	9.77	11.44
65	149	1.73	2.99	4.11	6.84	6.99	8.95	9.75	11.32
70	158	1.74	3.00	4.12	6.85	6.99	8.93	9.75	11.21
75	167	1.76	3.00	4.14	6.86	7.00	8.91	9.74	11.10
80	176	1.77	3.00	4.16	6.87	7.01	8.89	9.74	11.00
85	185	1.78	3.00	4.17	6.87	7.02	8.87	9.74	10.91
90	195	1.79	3.00	4.18	6.88	7.03	8.85	9.75	10.82
95	203	1.81	3.00	4.20	6.88	7.04	8.83	9.76	10.73

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.

  CFM blinking: ask confirmation of calibration value.

  CAL on: calibration mode has been entered.

  CAL blinking: meter is not calibrated or calibration is expired.

  RCL, MEM on: when recalling stored values.

  MEM blinking: measurement stored in the internal memory and frozen on the display.

- Indication of **temperature compensation mode**:
  MTC for manual, **ATC** for automatic compensation.

- **Battery symbol blinking**: low battery condition, about 25 hours of working time left. Batteries should be replaced.

- **Calibration messages**.

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

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

  WRONG "BUF" & WRONG "Electrode" blinking alternatively: wrong buffer, value not recognized.

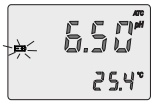
  CLEAN blinking: an abnormal difference between new and previous calibration has been detected. Electrode cleaning is suggested. Follow the cleaning procedure described in the "Electrode conditioning & maintenance" section.

TROUBLESHOOTING GUIDE

- **Blinking full scale value**: reading is out of range.
- **Blinking "°C" (or "°F")**: MTC mode or temperature probe not connected or broken.
- **Meter shuts off**:
  - check if auto-off feature is enabled; in this case meter shuts off after 20 minutes of non-use.
  - dead battery; replace battery.
- **"Er0, Er1, Er2" message**: internal technical problem. Contact your dealer or the nearest Hanna Service Center.
- **"Clr" message**, for 1 second at start-up: pH calibration cleared. Contact your dealer or the nearest Hanna Service Center.

BATTERY REPLACEMENT

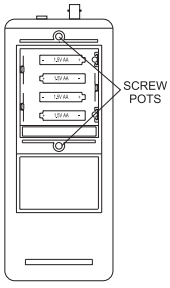
If batteries become weak, the display will flash the battery symbol to advise the user that approximately 25 hours of working time is left. It is recommended to replace batteries soon.



Moreover, when the battery level is too low to ensure reliable readings, at start-up the display will show "0 bAtt" for a few seconds, then the meter automatically turns off.

Battery replacement must only take place in a safe area and using the battery type specified in this instruction manual.

To replace rundown batteries, remove the rear cover of the instrument and substitute all four 1.5V AA alkaline batteries with new ones, while paying attention to the correct polarity. Reattach the cover and tighten the two screws.



pH ELECTRODE MAINTENANCE

Note: To prevent damage to the electrode, remove the pH electrode from the sample before turning the meter off. With the meter OFF, detach the electrode from the meter and immerse it in the storage solution.

Preparation

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.

Sensitive bulb

To avoid clogging problems and ensure a fast response, the bulb must be kept moist at any time. Store the electrode with few drops of **HI 70300** storage solution in the protective cap. NEVER USE DISTILLED OR DEIONIZED WATER FOR STORING PURPOSES.

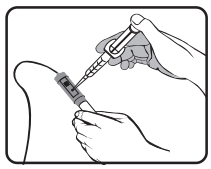
Periodic maintenance

Inspect electrode and cable. The cable used for the connection to the meter must be intact and there must be no points of broken insulation. The connector must be perfectly clean and dry. If any scratches or cracks are present, replace the electrode.

Refilling the electrode

ALWAYS VERIFY THE ELECTROLYTE LEVEL.

If the electrolyte level is more than 2 cm below the refilling hole, unscrew and remove the refilling hole cap.



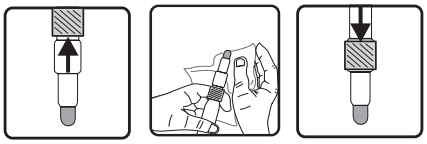
Add the 3.5M KCl electrolyte solution (**HI 7082**) by using the supplied syringe. Tighten back the cap. Wait at least 1 hour before using the electrode.

Cleaning procedure

After use, clean the electrode by immersing it in the proper cleaning solution (**HI 700635** or **HI 700636**) for 5 minutes.

If case of slow and unreliable readings, it is recommended to perform the following procedure for cleaning the junction:

1. Shift upwards the Teflon® collar. If the collar does not shift easily, immerse it into warm water.
2. Wipe gently the electrode surface with a soft and clean tissue.
3. In case of persistent wine or must residual, wet the tissue with cleaning solution (**HI 700635** or **HI 700636**).
4. Put back the Teflon® collar in its original position.



Troubleshooting

Evaluate your electrode performance based on the following.

- **Noise** (Readings fluctuate up and down) could be due to:
  - **Clogged/Dirty Junction:** refer to the cleaning procedure above.
  - **Loss of shielding** due to low electrolyte level (in refillable electrodes only): refill with fresh **HI 7082** solution.
- **Dry Membrane/Junction:** soak in **HI 70300** storage solution for 1 hour.
- **Drifting:** soak the electrode tip in warm (approx. 50-60°C) **HI 7082** solution for one hour and rinse the tip with distilled water. Refill with fresh **HI 7082** solution.
- **Low Slope:** refer to the cleaning procedure above.
- **No Slope:** check the electrode for cracks in glass stem or bulb and replace the electrode.
- **Slow Response/Excessive Drift:** soak the tip in **HI 7061** solution for 30 minutes, rinse thoroughly in distilled water and then follow the cleaning procedure above.

Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used. Operation of these instruments in residential area could cause unacceptable interference to radio and TV equipment, requiring the operator to take all necessary steps to correct interference. 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 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 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.

ACCESSORIES

PROBES

HI 1048B	Glass body, double junction, refillable pH electrode with BNC connector and 1 m (3.3') cable
HI 3131B	Glass-body, refillable, platinum ORP electrode
HI 7662	Stainless steel temperature probe with 1 m (3.3') cable

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

pH BUFFER SOLUTIONS

HI 7001L	pH 1.68 buffer solution, 500 mL bottle
HI 5003	pH 3.00 buffer solution, 500 mL bottle
HI 7004L	pH 7.01 buffer solution, 500 mL bottle
HI 7006L	pH 6.86 buffer solution, 500 mL bottle
HI 7007L	pH 7.01 buffer solution, 500 mL bottle
HI 7009L	pH 9.18 buffer solution, 500 mL bottle
HI 7010L	pH 10.01 buffer solution, 500 mL bottle
HI 5124	pH 12.45 buffer solution, 500 mL bottle

ELECTRODE MAINTENANCE SOLUTIONS

HI 70000P	Electrode rinsing solution, 20 mL sachet, 25 pcs
HI 70300L	Storage solution, 500 mL bottle
HI 7061L	General cleaning solution, 500 mL bottle
HI 70635L	Cleaning solution for wine deposits, 500 mL bottle
HI 70636L	Cleaning solution for wine stains, 500 mL bottle
HI 7073L	Protein cleaning solution, 500 mL bottle
HI 7074L	Inorganic cleaning solution, 500 mL bottle
HI 7077L	Oil & Fat cleaning solution, 500 mL bottle
HI 7082	3.5M KCl electrolyte solution, 4 x 30 mL, for double junction electrodes
HI 7091L	Reducing pretreatment solution, 500 mL bottle
HI 7092L	Oxidizing pretreatment solution, 500 mL bottle

OTHER ACCESSORIES

HI 721317	Rugged carrying case
HI 740157	Plastic electrode refilling pipet (20 pcs)
HI 76405	Electrode holder
HI 8427	pH and ORP electrode simulator with 1 m (3.3') coaxial cable ending in female BNC connectors
HI 931001	pH and ORP electrode simulator with LCD and 1 m (3.3') coaxial cable ending in female BNC connectors

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