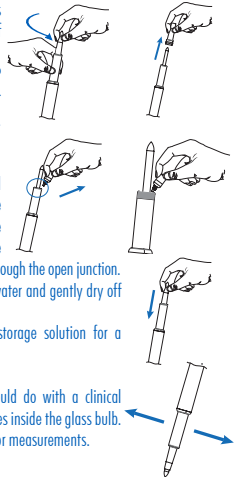
Care and Maintenance

To obtain the highest accuracy for measurements it is important to follow these tips:

- Fresh buffer should be used for each calibration. Calibration is only as good as the buffer being used. The pH buffer values change over time once the sachets are opened.
- The probe should be rinsed with purified water each time before placing in buffer or sample to be tested.
- When the meter is not in use it is important to add several drops of storage solution to the protective cap to keep the probe hydrated. If storage solution is not available, pH 4.01 or pH 7.01 buffer can be used.
- For improved accuracy it is recommended to calibrate in two buffers.
- It is important to calibrate and measure samples at the same temperature as there is no temperature compensation. A dramatic change in temperature between buffer solutions and samples to be tested will give inaccurate readings.

Refilling the Electrode

- If fouled, rinse the sleeve and sensor tip with purified water. Turn over the probe, remove the sleeve by carefully rotating it and pull straight along the axis of the electrode. Use care as the pH stem is made of glass. Rinse off any traces of electrolyte gel.
- Soak the sensor tip in HI700601P or HI700630P cleaning solution for 20 minutes then rinse with purified water.
- Refill the reference well with HI9071 Gelled Bridge Electrolyte.
- Replace the reference sleeve: insert and push the sleeve onto the electrode. Make sure the black O-ring is fixed inside the electrode body. Any excess of gel will be expelled from the end of the electrode through the open junction.
- Rinse any excess gel off with purified water and gently dry off body with a soft cloth or tissue.
- Soak assembled probe in Electrode storage solution for a minimum of 30 minutes.
- Rinse probe with purified water.
- Shake the electrode down as you would do with a clinical thermometer to eliminate any air bubbles inside the glass bulb.
- Calibrate in fresh buffers before using for measurements.



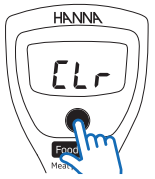
Warranty

The meter is warranted for a period of one year against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. 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 instrument 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.

Auto-off

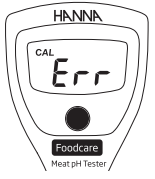
From measurement mode, press and hold the ON/OFF button. The meter will cycle through "OFF," "CAL," then current auto-off setting.

The default setting is 8 minutes ("d08"). Press ON/OFF button to change. "d60" is auto-off after 60 minutes, and "d--" disables the auto-off feature. Press and hold the button to exit the menu.



Clear Calibration

Place meter in calibration mode. Press and hold ON/OFF until "CLr" is displayed. The meter will now be at default calibration.



"Err" Message

In calibration mode, if the meter displays an "Err" message when in the correct fresh buffer solution then the probe should be cleaned. Place the probe in the HI700630 cleaning solution for 20 minutes. Rinse with purified water and place in storage solution for a minimum of 30 minutes before calibrating.

Battery Indicator

The meter features a low battery indicator. When the battery is running low, the tag will blink on screen. When the battery has been depleted, "Erb" will appear on screen and the meter will turn off.

Recommendations for Users

Before using this product, make sure it is entirely suitable for your specific application and for the environment in which it is used. Any variation introduced by the user to the supplied equipment may degrade the meters' performance. For yours and the meter's safety do not use or store the meter in hazardous environments.

Certification

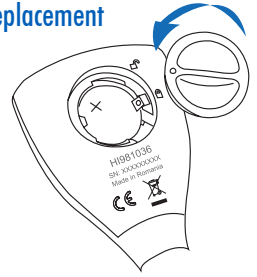
All Hanna Instruments conform to the **CE European Directives**. CE RoHS compliant

Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead hand it over to the appropriate collection point for the recycling of electrical and electronic equipment which will conserve natural resources.

Disposal of waste batteries. This product contains batteries, do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.

Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, the place of purchase or go to www.hannainst.com.

Battery Replacement



To change the CR2032 Li-ion battery, turn the battery cover located on the back of the meter counterclockwise to unlock. Remove cover and replace the battery with + side facing up.

Note: Batteries should only be replaced in a safe area using the battery type specified in this instruction manual. Old batteries should be disposed in accordance with local regulations.

Accessories

pH Buffer Solution

Code	Description
HI70004P	pH 4.01 buffer solution, 20 mL sachets (25 pcs.)
HI70007P	pH 7.01 buffer solution, 20 mL sachets (25 pcs.)
HI77400P	pH 4.01 & 7.01 buffer solution, 20 mL sachets (10 pcs., 5 ea.)

Electrode Cleaning Solution

Code	Description
HI700601P	General purpose cleaning solution, 20 mL sachets (25 pcs.)
HI700630P	Meat, grease and fats acid cleaning solution, 20 mL sachets (25 pcs.)

Electrode Storage Solution

Code	Description
HI70300L	Electrode storage solution, 500 mL bottle
HI70300M	Electrode storage solution, 230 mL bottle
HI9072	Electrode storage solution, 13 mL dropper

Electrode Fill Solution

Code	Description
HI9071	Gelled Bridge Electrolyte

IST981036 06/18

INSTRUCTION MANUAL

Foodcare

HI981036

Meat pH Tester

HANNA® instruments

Thank You

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using this instrument.

For technical support, contact your local Hanna Instruments Office or email us at tech@hannainst.com.

To find your local Hanna Instruments Office or for additional information on Hanna Instruments products, visit www.hannainst.com

Preliminary Examination

Remove the meter from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If noticeable damage is evident, contact your local Hanna Instruments Office.

Each meter is supplied with:

- pH 4.01 buffer solution liquid sachet (2 pcs.)
- pH 7.01 buffer solution liquid sachet (2 pcs.)
- Meat, grease and fats acid cleaning solution (2 pcs.)
- Electrode storage solution, 13 mL dropper
- Electrode fill solution
- Instruction manual
- Quality certificate

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

Intended use

The meter has been specially designed for meat processing. In the meat processing industry, the monitoring of pH is considered to be of the utmost importance due to its effect on the meat's quality factors including water binding capacity and shelf life. Upon slaughter, biochemical processes begin to break down the meat. Glycolysis begins post-mortem, converting glycogen to lactic acid, reducing the pH of the carcass. Depending on a number of factors such as type of animal and even breed, this decrease in pH can take anywhere from a single hour to many. It is vital to monitor pH during this phase as once the lowest pH value is reached, the pH will begin to slowly rise, indicating that decomposition has begun.

The pH value of meat influences its' water binding capacity which directly impacts consumer qualities such as tenderness and color. Lower pH values result in a lower water-binding capacity and lighter colors. Factors such as these can be important when considering how to efficiently produce meat products. For example, when producing dry sausages the meat must have a low water binding capacity so that it can dry evenly.

Depending on the type of the final product and the steps required to get there, pH values will vary throughout the meat processing industry. It is imperative, regardless of the final product, that pH be maintained at a low value to prevent bacterial spoilage and comply with food safety regulations. By monitoring pH values throughout the meat production process, you can ensure the creation of consistent and safe meat products.

Probe Features

PVDF Body

Polyvinylidene fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength and resistance to ultraviolet. PVDF is also resistant to fungal growth.

Open Reference Junction with removable sleeve design

Suspended solids can permanently clog the pores of a ceramic reference junction. The open junction design provides a constant junction potential and minimizes blockage by providing an open gel interface between the sample and internal Ag/AgCl reference. Should meat enter into the junction, the junction can be easily cleaned and refreshed with new bridge electrolyte.

Specifications

Range	0.0 to 14.0 pH
Resolution	0.1 pH
Accuracy	±0.2 pH @25 °C/77 °F
Calibration	Automatic, one or two-point
Electrode	Built-in probe for specific application
Battery Type	CR2032 Li-ion
Battery Life	Approximately 1000 hours of continuous use
Auto-off	8 minutes, 60 minutes or can be disabled
Environment	0 to 50 °C (32 to 122 °F); RH 95% max
Dimensions	51 x 148 x 21 mm (2 x 5.8 x 0.9")
Weight	43 g (1.5 oz.)

Meter Overview

Preparation:

The pH electrode is shipped with a protective cap containing storage solution. Before using the meter, **remove the protective** cap and condition the electrode by soaking the tip (bottom 4 cm (1.5")) in pH 7.01 buffer solution for several minutes. Then follow the calibration procedure.

- Do not be alarmed if white crystals appear around the cap. This is normal with pH electrodes and they dissolve when rinsed with water.
- Turn the meter on by pressing ON/OFF button.

NEVER IMMERSE THE ELECTRODE OVER THE MAXIMUM IMMERSION LEVEL.

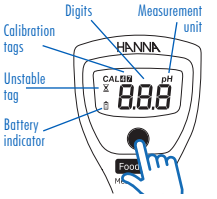
- For best results recalibrate periodically.
- After use, rinse the electrode with water and store it with a few drops of storage solution in the protective cap.
- Reinstall the protective cap after each use.

DO NOT USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.

Operation

Press the ON/OFF button to turn the meter on. All tags will be displayed.

The meter will go into measurement mode: current reading and calibrated buffers are displayed.



Meter Calibration

From measurement mode, press and hold the ON/OFF button until "CAL" is displayed.

When "7.01" blinks on the display, place the tip of the probe into a pH 7.01 or 4.01 buffer solution.

A For one or two-point calibration using pH 7.01 buffer go to procedure A

B For one-point calibration using pH 4.01 buffer go to procedure B

A One or Two-Point Calibration with pH 7.01

If pH 7.01 buffer solution is used as the first point the buffer is recognized with the blinking stability indicator.

When the reading is stable, the stability indicator will disappear and pH 7.01 will be calibrated.

If pH 7.01 is the only calibration point, finish one-point procedure at right.

If using pH 4.01 as a second point, continue two-point procedure at right.

One-Point

pH 4.01 will then blink on the display. Ignore it and press ON/OFF button.

"Sto" will be displayed when the calibration is saved.

Meter will exit to measurement mode and the calibration tag will be displayed.

Two-Point

Use pH 4.01 to perform a two-point calibration. The value is automatically recognized and displayed with the blinking stability indicator.

When the reading is stable, the stability indicator will disappear. "Sto" will be displayed when the calibration is saved.

Meter will exit to measurement mode and the calibration tags will be displayed.

B One-Point Calibration with pH 4.01

If pH 4.01 buffer solution is used as the first point the value of the buffer is recognized and displayed with the blinking stability indicator.

When the reading is stable, the stability indicator will disappear."Sto" will be displayed when the calibration is saved.

Meter will exit to measurement mode and the calibration tag will be displayed.