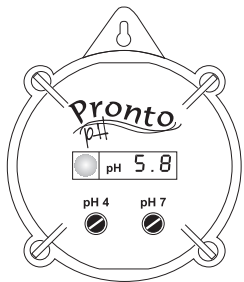


Instruction Manual

Pronto[®] pH

(HI 981402)

On-line, Waterproof pH meter with Alarm



HANNA[®]
instruments
www.hannainst.com

WARRANTY

HI 981402 is warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions.

The electrode is warranted for a period of six months.

This warranty is limited to repair or replacement free of charge.

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

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

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

Dear Customer,

Thank you for choosing a Hanna product.

This manual will provide you with the necessary information for correct operation of the meter. Please read it carefully before using the meter.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

This instrument is in compliance with the CE directives.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

The meter is supplied with:

- HI 1286 pH electrode
- Calibration screwdriver
- 12 Vdc power adapter and instructions.

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

GENERAL DESCRIPTION

HI 981402 is a pH meter specially designed to meet the needs of simple continuous monitoring of pH.

The housing has been completely sealed against vapors and humidity with IP54 rating.

Simply hang the meter right above the sample to be tested for continuous measurement.

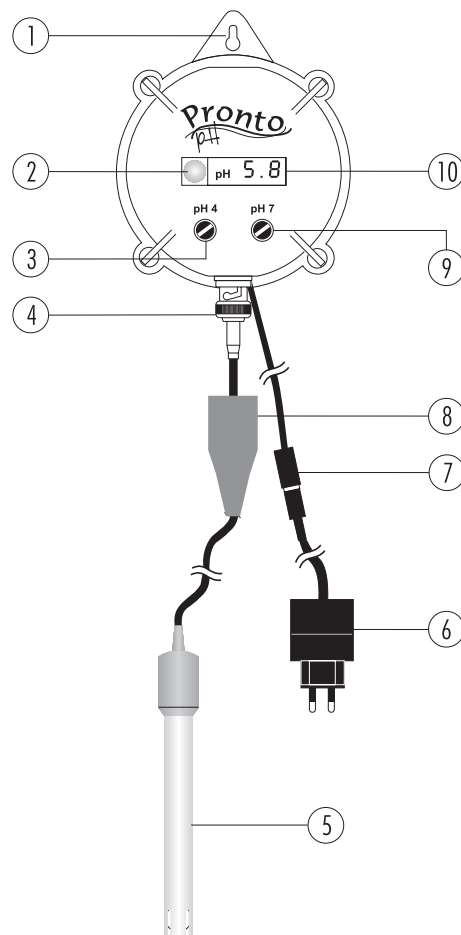
The HI 1286 gel-filled pH electrode is interchangeable and the BNC connector is protected behind a waterproof sheath. The unique design of the electrode provides longer life even in aggressive solutions.

This instrument also provides for a selectable setpoint and alerts the user with a flashing LED alarm when an abnormal situation occurs.

Measurements are highly accurate and the meter can be calibrated at one or two points.

You no longer need to worry about battery changes either: the unit runs without interruption on 12 Vdc power supply.

FUNCTIONAL DESCRIPTION



1. Molded eye
2. Alarm LED
3. "pH 4" calibration trimmer
4. BNC connector
5. HI 1286 pH electrode
6. 12 VDC power adapter
7. Power supply connector
8. Protective sheath
9. "pH 7" calibration trimmer
10. Liquid Crystal Display

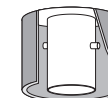
SPECIFICATIONS

Range	0.0 to 14.0 pH
Resolution	0.1 pH
Accuracy (@ 25°C/77°F)	±0.2 pH
Typical EMC Deviation	±0.2 pH
Calibration	Manual, through offset and slope trimmers
pH Electrode	HI 1286 (included)
Setpoint	3.0 to 11.0 pH
Hysteresis	±0.5 pH around setpoint
Alarm	LED blinks when pH is outside hysteresis range
Casing	IP54
Power supply	12 Vdc adapter (included)
Dimensions	86 x 110 x 43 mm (3.4 x 4.3 x 1.7")
Weight	150 g (5.3 oz.)

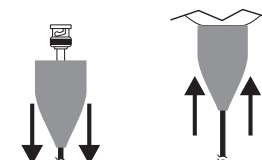
OPERATIONAL GUIDE

pH ELECTRODE CONNECTION & MAINTENANCE

In order to protect the instrument against vapors and humidity, the BNC connector is shielded behind a waterproof sheath.



- Slide the protective sheath down. Connect the pH electrode to the BNC connector and then slide the protective sheath back up. Since the protective sheath is rubberized to ensure maximum waterproof protection, make sure the connector is completely covered.



- Do not be alarmed if white crystals appear around the electrode protective cap. This is normal with pH electrodes and they dissolve when rinsed with water.

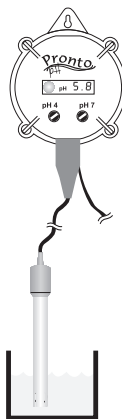
- When not in use, rinse the electrode with water and store it with a few drops of storage (HI 70300) or pH 7 (HI 7007) solution in the protective cap. Always replace the protective cap after use.

DO NOT USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.

- If the electrode has been left dry, soak the tip in a storage (HI 70300) or pH 7 (HI 7007) solution for at least one hour to reactivate it.
- To minimize clogging and provide longer life for the pH electrode, it is recommended to clean it monthly. Immerse the tip of the electrode in HI 7061 for one hour and then rinse it with tap water.

TAKING pH MEASUREMENTS

- Turn the meter on by connecting the 12 Vdc power adapter to the meter and to the mains.
- Remove the protective cap from the pH electrode and immerse the pH electrode tip (4 cm/1½") into the sample.
- The LCD will show the pH value. Allow the reading to stabilize and the instrument will start continuous monitoring.

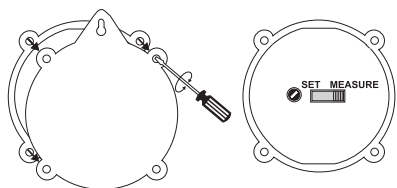


Note: To prevent damages to the pH electrode, remove it from the sample before turning the meter off.

ADJUSTING THE SETPOINT

With HI 981402 you can select the desired setpoint and be alerted with a visual LED alarm when an abnormal situation arises.

- To access the MEASURE/SET switch and the setpoint adjustment trimmer, remove the rear panel.
- Move the switch to the left (SET position).

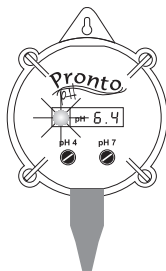


- With a small screwdriver adjust the setpoint trimmer to display the desired value in the range from 3 to 11 pH.



pH 5.8

- Moved back the switch to the MEASURE position.
- Close the meter with the rear panel, while making sure the gasket is in place before tightening the screws.
- Whenever the pH reading varies more than ± 0.5 pH from the setpoint, the red alarm LED blinks to warn the user.



CALIBRATION

For the greatest accuracy, frequent calibration of the instrument is recommended. In addition, the instrument must be recalibrated whenever:

- The pH electrode is replaced
- After testing aggressive chemicals
- Where extreme accuracy is required
- At least once a month

PREPARATION

Pour small quantities of pH 7.0 (HI 7007) and pH 4.0 (HI 7004) solution into two clean beakers.

For accurate calibration use two beakers for each buffer solution, the first one for rinsing the tip of the electrode and the second one for calibration.

RINSE



CALIBRATION



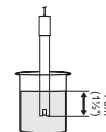
For the second calibration point, the pH 4.0 (HI 7004) buffer is recommended if you are going to measure acidic samples, while pH 10.0 (HI 7010) should be used if samples to be tested are alkaline.

CALIBRATION PROCEDURE

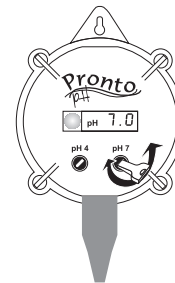
- Turn the meter on and make sure that the MEASURE/SET switch is on the MEASURE position.
- Remove the protective cap from the electrode, rinse and immerse it in pH 7.0 buffer solution. Stir gently and wait a couple of minutes for the reading to stabilize.



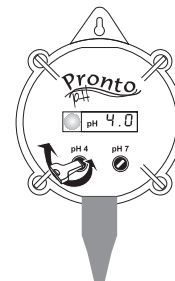
Note: The electrode should be submerged approximately 4 cm (1½") in the solution.



- With the calibration screwdriver, adjust the "pH 7" trimmer until the LCD shows "pH 7.0".



- Rinse and immerse the pH electrode in pH 4.0 (or pH 10.0) buffer and stir gently.
- Wait a couple of minutes, then adjust the "pH 4" trimmer until the LCD shows "pH 4.0" (or "pH 10.0").



The calibration is now complete.

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 areas could cause unacceptable interferences to radio and TV equipment.

The glass bulb at the end of the 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 instrument's EMC performance.

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

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

ACCESSORIES

- HI 1286** Double junction, plastic body pH electrode with 2 m (6.6') cable and BNC connector
- HI 2114P/2** Double junction, plastic body pH electrode with 2 m (6.6') cable and BNC connector
- HI 70004P** pH 4.01 solution, 20 mL sachet (25 pcs)
- HI 70007P** pH 7.01 solution, 20 mL sachet (25 pcs)
- HI 70010P** pH 10.01 solution, 20 mL sachet (25 pcs)
- HI 7004L** pH 4.01 solution, 500 mL bottle
- HI 7007L** pH 7.01 solution, 500 mL bottle
- HI 7010L** pH 10.01 solution, 500 mL bottle
- HI 70300L** Electrode storage solution, 500 mL bottle
- HI 7061L** Electrode cleaning solution, 500 mL bottle
- HI 710005** 12 Vdc power adapter, US plug
- HI 710006** 12 Vdc power adapter, European plug
- HI 710012** 12 Vdc power adapter, Australian plug
- HI 710013** 12 Vdc power adapter, Southern Africa plug
- HI 710014** 12 Vdc power adapter, UK plug

CE DECLARATION OF CONFORMITY

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DECLARATION OF CONFORMITY

We

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

herewith certify that the pH meters:

HI 981402 HI 981403

have been tested and found to be in compliance with the following regulations:

IEC 801-2 Electrostatic Discharge
IEC 801-3 RF Radiated
IEC 801-4 Fast Transient
EN 55022 Radiated, Class B
EN 61010-1 User Safety Requirement

Date of Issue: 14-7-1998

D. Volpato - Engineering Manager
On behalf of
Hanna Instruments S.r.l.