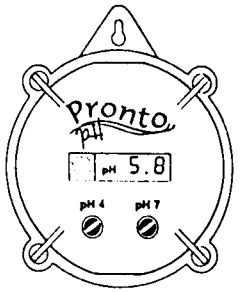
Instruction Manual

Pronto pH

(HI 981402)

On-line, Waterproof pH meter with Alarm



HANNA instruments

http://www.hannainst.com

CE

This Instrument is in Compliance with the CE Directives

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 and the probe are warranted for a period of one year.** 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.

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

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 the 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.

These instruments are in compliance with the CE directives EN 50081-1 and EN 50082-1.

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;
- HI 1283 grounding probe;
- Calibration screwdriver;
- 12 VDC power adapter.

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.

You can simply hang the meter right above the sample to be tested for continuous measurement.

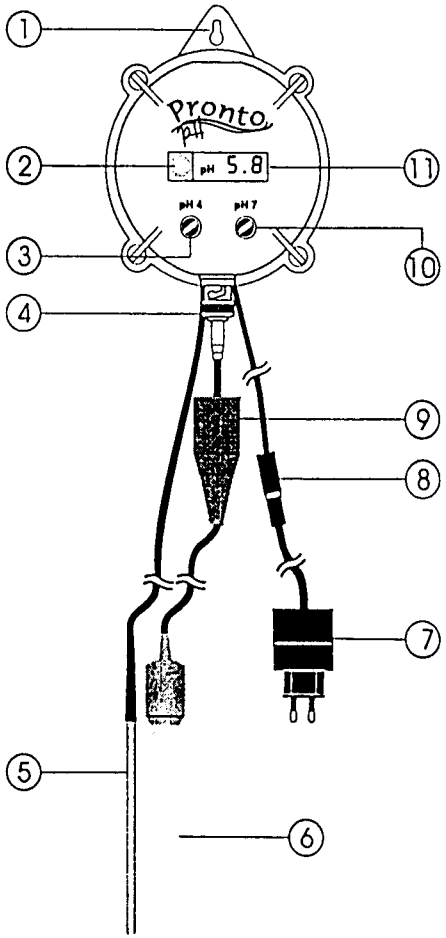
The HI 1286 gel-filled pH electrode is interchangeable and the BNC connector is protected behind a waterproof sheath. The unique design of the electrode provides longer life even in aggressive solutions. The HI 981402 is also supplied with a differential input and HI 1283 stainless steel probe to prevent potential grounding problems and thus ensuring longer life for your electrode.

You can even select your own setpoint and be alerted of an abnormal situation with a flashing LED alarm.

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 4.0 calibration trimmer
4. BNC connector
5. HI 1283 stainless steel grounding probe
6. HI 1286 pH electrode
7. 12 VDC power adapter
8. Power supply connector
9. Protective sheath
10. pH 7.0 calibration trimmer
11. Liquid Crystal Display

SPECIFICATIONS

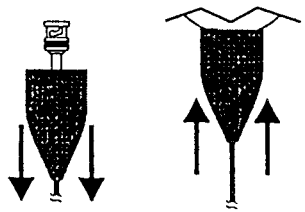
Range	0.0 to 14.0 pH
Resolution	0.1 pH
Accuracy (@ 25°C/77°F)	±0.2 pH
Typical EMC Deviation	±0.1 pH
Setpoint	3.0 to 11.0 pH
Hysteresis	±0.5 pH around setpoint
Alarm	LED blinks when pH is outside hysteresis range
Calibration	Manual with two trimmers for offset and slope
Probes	HI 1286 interchangeable pH electrode and HI 1283 grounding probe (included)
Casing	IP54
Power supply	External 12 VDC (included)
Dimensions	86 x 94 x 33 mm (3.4 x 3.7 x 1.3")
Weight	150 g (5.3 oz.)

OPERATIONAL GUIDE

pH ELECTRODE CONNECTION & MAINTENANCE

In order to protect HI 981402 against vapors and humidity, the BNC connector is shielded behind a waterproof sheath.

- Slide the protective sheath down. Connect the HI 1286 pH electrode to the BNC connector and then slide the protective sheath back up all the way up to the HI981402 casing. 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 to

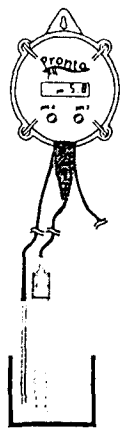
minimize contamination and store it with a few drops of storage (HI 70300) or pH 7 (HI 7007) solution in the protective cap. Always replace the protective cap after use.

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.
- In addition to the pH electrode, the HI 981402 is supplied with a differential input and HI 1283 stainless steel probe to prevent potential grounding problems. Remove the protective cap from the pH electrode and immerse the tips (4 cm/1½") of both pH electrode and grounding probe in the sample.



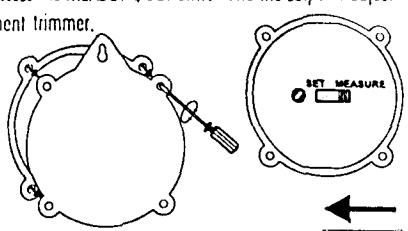
- The LCD will show the pH value. Allow the reading to stabilize and HI 981402 will start continuous monitoring.

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

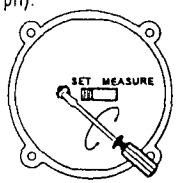
ADJUSTING THE SETPOINT

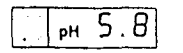
With the HI 981402 you can select your own setpoint and be alerted with a visual LED alarm when an abnormal situation arises.

- Unscrew and remove the rear panel and gasket seal to access the MEASURE/SET switch and the setpoint adjustment trimmer.

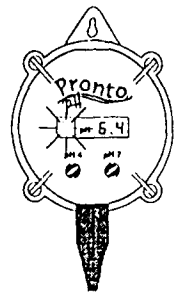


- Move the switch to the left (SET).
- With a small screwdriver adjust the setpoint trimmer to display the desired value in the 3 to 11 pH range (e.g. 5.8 pH).





- Make sure the switch is moved back to the right (MEASURE Mode).
- Replace the rear panel and the gasket, ensuring the unit is properly closed.
- Whenever the pH reading varies by more than ±0.5 pH from the setpoint, the red alarm LED blinks to warn the user.



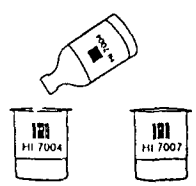
CALIBRATION

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

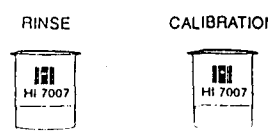
a) The pH electrode is replaced.
b) After testing aggressive chemicals.
c) Where extreme accuracy is required.
d) At least once a month.

PREPARATION

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



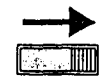
For accurate calibration use two beakers for each buffer solution, the first one for rinsing the tip of the electrode and the second one for calibration. This way, contamination of the buffers is minimized.



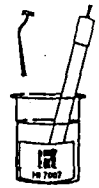
pH 4.0 (HI 7004) is recommended for measuring acidic samples. Use pH 10.0 (HI 7010) if subsequent samples are alkaline.

CALIBRATION PROCEDURE

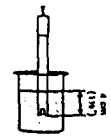
- Turn the meter on and make sure that the MEASURE/SET switch is on the MEASURE mode.



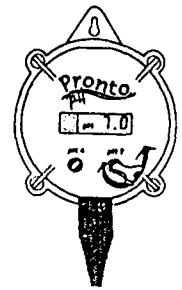
- Remove the protective cap from the electrode, rinse and immerse it in a pH 7.0 buffer with the grounding probe. Stir gently and then wait a couple of minutes for the reading to stabilize.



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

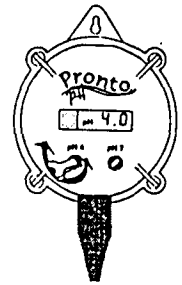


- Adjust the right hand trimmer with the calibration screwdriver until the LCD shows pH 7.0.



- Rinse and immerse the pH electrode and the grounding probe in pH 4.0 (or pH 10.0) buffer and stir gently.

- Wait a couple of minutes and then adjust the left hand trimmer until the LCD shows the value of the second buffer.



The pH calibration is now complete.

CE DECLARATION OF CONFORMITY

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CE

DECLARATION OF CONFORMITY

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

herewith certify that the pH meter:

HI 981402

has 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: 23-3-1998

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

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 1283 *	Stainless steel grounding probe with 2 m (6.6') cable
HI 1286	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 7004L	pH 4.01 solution, 460 mL bottle
HI 7007L	pH 7.01 solution, 460 mL bottle
HI 7061L	Electrode cleaning solution, 460 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
HI 77400P	pH 4 & 7 solutions, 20 mL sachet (5 each)

* To be replaced only by authorized service technicians