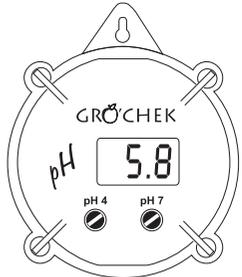


Instruction Manual

pH
GRÖCHEK
(HI 981401N)

Water-resistant pH Monitor with Large LCD



HANNA
instruments
www.hannainst.com

WARRANTY

HI 981401N is warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. **The electrodes are 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 a correct operation. 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
- HI 1283 grounding probe
- pH 4.01 and 7.01 buffer solutions (20 mL each)
- 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 981401N is a pH meter specially designed to meet the needs of growers in greenhouses and hydroponic applications. It is equipped with a large LCD for easy-to-read measurements even from a distance.

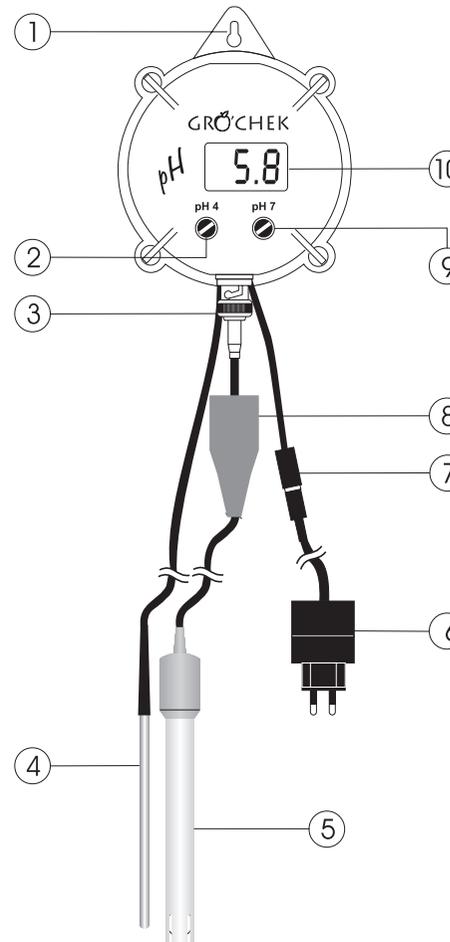
The housing has been completely sealed against vapors and humidity.

The HI 1286 gel-filled pH electrode is interchangeable and the BNC connector is protected behind a waterproof sheath. The meter is also supplied with a stainless steel probe to prevent potential grounding problems and thus ensuring longer life for your electrode. The electrode has been designed for use in fertilizer solutions with high concentration of phosphate and nitrate.

You can simply hang the meter right above the sample to be tested for continuous measurement, and it will run without interruption on 12 Vdc power supply.

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

FUNCTIONAL DESCRIPTION



1. Molded eye
2. "pH 4" calibration trimmer
3. BNC connector
4. HI 1283 stainless steel grounding probe
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 (LCD)

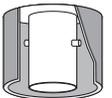
SPECIFICATIONS

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
Calibration	Manual with two trimmers for offset and slope
Probes	HI 1286 pH electrode (included) and HI 1283 grounding probe (fixed)
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)

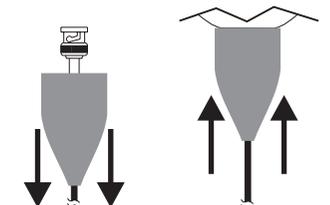
OPERATIONAL GUIDE

pH ELECTRODE CONNECTION & MAINTENANCE

In order to protect the meter against vapors and humidity, the BNC connector is protected with 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. 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 pH7 (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 pH7 (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, 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, the meter 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 into the sample.
- The LCD will show the pH value. Allow the reading to stabilize and the meter will start continuous monitoring.



Note: To prolong the electrode life, after switching the meter off, remove the electrode from the solution.

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) Extreme accuracy is required
- d) At least once a month

PREPARATION

Pour small quantities of pH 7.01 (HI 7007) and pH 4.01 (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

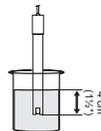


As second point for calibration, pH 4.01 buffer (HI 7004) is recommended for measuring acidic samples, while pH 10.01 (HI 7010) should be used if the samples to be tested are alkaline.

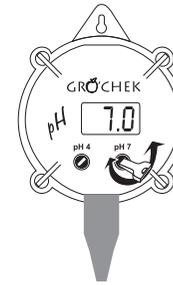
CALIBRATION PROCEDURE

- Remove the protective cap from the electrode, rinse and immerse it in pH 7.01 buffer solution together with the grounding probe. Stir gently and wait a couple of minutes for the reading to stabilize.

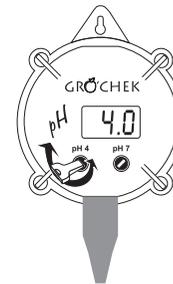
Note: the electrode should be submerged approximately 4 cm (1½") in the solution.



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



- Rinse and immerse pH electrode and grounding probe in pH 4.01 (or pH 10.01) buffer solution.
- Stir gently, wait a couple of minutes and adjust the "pH 4" trimmer until the LCD shows "4.0" pH (or "10.0" pH).



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.

CE DECLARATION OF CONFORMITY

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DECLARATION OF CONFORMITY

We

Hanna Instruments Italia Srl
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35030 Sarmeola di Rubano - PD
ITALY

herewith certify that the pH meter

HI 981401N

has been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 801-2 Electrostatic Discharge
IEC 801-3 RF Radiated
IEC 801-4 Fast Transient

EN 50081-1: Electromagnetic Compatibility - Generic Emission Standard
EN 55022 Radiated, Class B

EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 01.08.2000

A. Marsilio - Technical Director
On behalf of
Hanna Instruments S.r.l.

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 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

* To be replaced by authorized technical personnel only.