**Instruction Manual**

**Pronto**

(HI 981402, HI 981403)

On-line, Waterproof pH meter with Alarm

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 contact us at tech@hannainst.com.

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

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**FUNCTIONAL DESCRIPTION**

1. Molded eye
2. Alarm LED
3. pH 4.0 calibration trimmer
4. BNC connector
5. HI 1286 or HI 2114P/2 pH electrode
6. 12 VDC power adapter
7. Power supply connector
8. HI 981402 and HI 981403 are pH meters specially designed to meet the need of single continuous monitoring of pH. The housing has been completely sealed against vapors and humidity with IP54 rating.

**SPECIFICATIONS**

- **Electrode**: HI 1286 interchangeable pH electrode
- **Setpoint**: 3.0 to 11.0 pH
- **Hysteresis**: ±0.5 pH around setpoint
- **Alarm**: LED starts blinking when pH is outside hysteresis range

**HI 981402**
- **Electrode**: HI 1286 interchangeable pH electrode
- **Setpoint**: 3.0 to 11.0 pH
- **Hysteresis**: ±0.5 pH around setpoint
- **Alarm**: LED starts blinking when pH is outside hysteresis range

**HI 981403**
- **Electrode**: HI 2114P/2 interchangeable pH electrode
- **Setpoint**: 6.0 to 9.5 pH
- **Hysteresis**: 0.5 pH around setpoint
- **Alarm**: LED starts blinking when pH is outside hysteresis range

**COMMON SPECIFICATIONS**

- **Range**: 0.0 to 14.0 pH
- **Accuracy (@ 25°C/77°F)**: ±0.2 pH
- **Resolution**: 0.1 pH
- **Typical EMC Deviation**: ±0.2 pH
- **Calibration**: Manual with two trimmers for offset and slope
- **Casing**: IP54
- **Power supply**: External 12 VDC (included)

**DIMENSIONS**

- **Dimensions**: 86 x 94 x 33 mm (3.4 x 3.7 x 1.3")

**WEIGHT**

- **Weight**: 150 g (5.3 oz.)

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**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 for HI981402;
- HI 2114P/2 pH electrode for HI981403;
- Calibration screwdriver;
- 12 VDC power adapter.

Note: General use of the instrument until the instrument has been observed to function correctly. Any alteration must be returned in its original packing.

**OPERATIONAL GUIDE**

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

1. Molded eye
2. Alarm LED
3. pH 4.0 calibration trimmer
4. BNC connector
5. HI 1286 or HI 2114P/2 pH electrode
6. 12 VDC power adapter
7. Power supply connector
8. Protective sheath

Note: General use of the instrument until the instrument has been observed to function correctly. Any alteration must be returned in its original packing.

**GENERAL DESCRIPTION**

HI 981402 and HI 981403 are pH meters spatially designed to meet the need of single 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 measured for continuous measurement.

The HI 1286 and HI 2114P/2 gel-filled pH electrodes are interchangeable and the BNC connector is protected behind a waterproof sheath. The unique design of the electrode provides longer life even in aggressive solutions. You can even select your own setpoint and be alerted of an abnormal situation with a flashing LED alarm.

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Hanna Instruments makes no warranty of design, adaptation or equipment furnished or supplied. The user assumes all responsibility and liability for its use.
• 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 drying out and store it with a covering of storage (H 7000) or pH 7 (H 7001) 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 (H 7000) or pH 7 (H 7001) solution for at least one hour to rehydrate it. Then rinse the tip of the electrode in H 7003, 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 tip (4 cm/1½") of pH electrode in the sample.

• Turn the switch to the left (SET).

• Move the switch to the left (SET).

• With a small screwdriver adjust the setpoint trimmer to display the desired value in the range 3 to 11, pH 4 (H 981402) or 6 to 9.5 pH (H 981403).

• Measure the pH value at the right (MEASURE Mode)

• Replace the rear panel and the gasket, ensuring the unit is properly closed.

• Rinse the electrode and immerse it in a pH 7.0 buffer. Stir gently and then wait a couple of minutes for the reading to stabilize.

**CALIBRATION**

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

1. The pH electrode is replaced.
2. After testing aggressive chemicals.
3. Where extreme accuracy is required.
4. After one month.

• Adjust the right hand trimmer with the calibration software until the LCD shows pH 7.0.

**PREPARATION**

For accurate calibration use two buffers for each buffer solution the list on for storing the pH of the electrode and the second one for calibration. This way contamination of the buffers is minimized.

• Rinse and immerse the pH electrode in pH 4.0 or pH 10.0 solution (or pH 3.0 or pH 11.0) buffer and stir gently.

• Wait a couple of minutes and then adjust the left hand trimmer until the LCD shows pH 7.0.

• With a small screwdriver adjust the setpoint trimmer to display the desired value in the range 3 to 11, pH 4 (H 981402) or 6 to 9.5 pH (H 981403).

**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 it in a pH 7.0 buffer, stir gently and then wait a couple of minutes for the reading to stabilize.

• 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.

Note: the electrode should be sub merged approximately 4 cm (3/5") in the solution.

• If the electrode has been left dry, soak the tip in a storage (H 7000) or pH 7 (H 7001) solution for at least one hour to reactivate it.

• Replace the rear panel and the gasket, ensuring the unit is properly closed.

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

• The LCD will show the pH value. Allow the unit to stabilize and the instrument will return to the monitoring mode.

**ADJUSTING THE SETPOINT**

With H 981402 and H 981403, 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.

• 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.