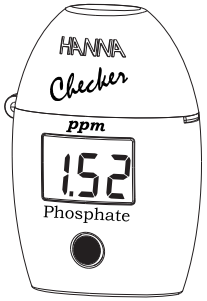
HI 713

Phosphate Low Range



HANNA instruments
www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna Instruments Product.
Please read this instruction manual carefully before using the instrument. If you need additional technical information, do not hesitate to e-mail us at **tech@hannainst.com**.

Preliminary examination:

Please examine this product carefully. Make sure that the instrument is not damaged. If any damage occured during shipment, please notify your Dealer.
Each **HI 713** meter is supplied complete with:

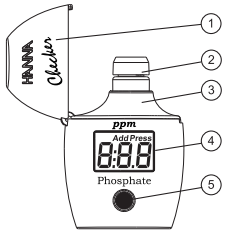
- Two Sample Cuvettes and Caps
- Six powder reagents for Phosphate Low Range
- 1 x 1.5V AAA Battery
- Instruction Manual

For more details about spare parts and accessories see "Accessories".

Technical specifications:

Range	0.00 to 2.50 ppm
Resolution	0.01 ppm
Precision	±0.04 ppm ±4% of reading @ 25°C
Typical EMC Dev.	±0.01 ppm
Light Source	Light Emitting Diode @ 525 nm
Light Detector	Silicon Photocell
Method	Adaptation of the Ascorbic Acid method. The reaction between phosphate and the reagent causes a blue tint in the sample.
Environment	0 to 50°C (32 to 122°F); max 95% RH non-condensing
Battery Type	1 x 1.5V AAA
Auto-Shut off	After 2 minutes of non-use and 10 seconds after reading.
Dimensions	81.5 x 61 x 37.5 mm (3.2 x 2.4 x 1.5")
Weight	64 g (2.25 oz.).

Functional description:



1. Cuvette cap.
2. Cuvette with cap.
3. Cuvette holder.
4. Liquid Crystal Display.
5. Button

Errors and warnings:

Light High: There is too much light to perform a measurement. Please check the preparation of the zero cuvette.

Light Low: There is not enough light to perform a measurement. Please check the preparation of the zero cuvette.

Inverted cuvettes: The sample and the zero cuvette are inverted.

Under range: A blinking **"0.00"** indicates that the sample absorbs less light than the zero reference. Check the procedure and make sure you use the same cuvette for reference (zero) and measurement.

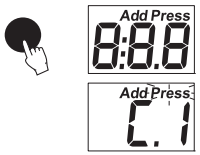
Over Range: A flashing value of the maximum concentration indicates an over range condition. The concentration of the sample is beyond the programmed range: dilute the sample and re-run the test.

Battery low: The battery must be replaced soon.

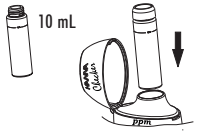
Dead battery: This indicates that the battery is dead and must be replaced. Once this indication is displayed, the meter will lock up. Change the battery and restart the meter.

Measurement procedure:

- Turn the meter on by pressing the button. After all the segments are displayed, "**C.1**", "**Add**" appears with "**Press**" blinking, the meter is ready.

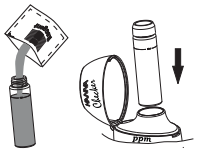


- Fill the cuvette with 10 mL of unreacted sample and replace the cap. Place the cuvette into the meter and close the meter's cap.

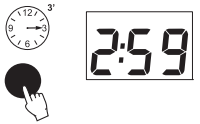


- Press the button. When the display shows "**Add**", "**C.2**" with "**Press**" blinking the meter is zeroed.

- Remove the cuvette, open it and add the content of one packet of **HI 713-25** reagent. Replace the cap and shake gently for 20 seconds. Replace the cuvette into the meter.



- Wait for 3 minutes and then press the button or press and hold the button until the timer is displayed on the LCD.



- The instrument directly displays the concentration of phosphate in ppm. The meter automatically turns off after 10 seconds.

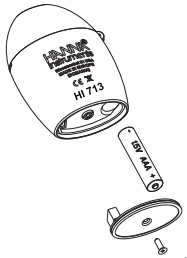
Tips for an accurate measurement

- It is important that the sample does not contain any debris.
- Whenever the cuvette is placed into the measurement cell, it must by dry outside, and completely free of fingerprints, oil or dirt. Wipe it throughly with **HI 731318** or a lint-free cloth prior to insertion.
- Shaking the cuvette can generate bubbles, causing higher readings. To obtain accurate measurements, remove such bubbles by swirling or by gently tapping the cuvette.
- Do not let the reacted sample stand for too long after reagent is added, or accuracy will be lost.
- After the reading it is important to immediately discard the sample, otherwise the glass might become permanently stained.

Battery management

To save the battery, the instrument shuts down after 2 minutes of non-use and 10 seconds after read.
One fresh battery lasts for a minimum of 5000 measurements, depending on the light level.
When the battery capacity is under 10 % "**bAt**" appears on the LCD at start-up.
If the battery is empty and accurate measurements can't be taken any more, the instrument shows "**bAd**" then "**bAt**" each for 1 second and turns off.
To restart the instrument, the battery must be replaced with a fresh one.
To replace the instrument's battery, follow the steps:

- Turn the instrument off by holding the button until the meter shuts off.
- Turn the instrument upside down and remove the battery cover with a screwdriver.



- Remove the battery from its location and replace it with a fresh one.
- Insert the battery cover and replace the screw with a screwdriver.

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Accessories:

REAGENT SETS	
HI 713-25	Reagents for 25 Phosphate Low Range tests
OTHER ACCESSORIES	
HI 740028	1.5V AAA batteries (4 pcs)
HI 731318	Tissue for wiping cuvettes (4 pcs)
HI 731321	Glass cuvettes (4 pcs)
HI 731353	Caps for cuvettes (4 pcs)
HI 93703-50	Cuvettes cleaning solution (230 mL).

Recommendations for Users

Before using these products, make sure that they are entirely suitable for your specific application and for the environment in which they are used.
Operation of these instruments may cause unacceptable interferences to other electronic equipments, thus requiring the operator to take all necessary steps to correct interferences.
Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance.
To avoid damages or burns, do not put the instrument in microwave oven. For the safety of you and the instrument do not use or store the instrument in hazardous environments.

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

For additional information, contact your dealer or the nearest Hanna Customer Service Center. To find the Hanna Office in your area, visit our web site

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