

Installation, Operation and Maintenance Manual

Chlorine Pocket Photometer Field Portable 0-10 mg/L



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⚠ WARNING



**THINK
SAFETY
FIRST**

Read this Manual BEFORE using this equipment.
Failure to read and follow all safety and use information
can result in death, serious personal injury, property
damage, or damage to the equipment.
Keep this Manual for future reference.

1.0 Understanding Safety Information

This manual contains basic instructions that you must follow during the operation, care and maintenance of the instrument. The safety protection provided by this equipment may be impaired if it is used in a manner not described in this manual. It is recommended that all operators should read this manual prior to working with this instrument.

In certain instances, Cautions or Notices have been highlighted to give further clarification to the instructions. Refer to the Table of Contents to easily find specific topics and to learn about unfamiliar terms.

1.1 Symbols Used in this manual

CAUTION

This symbol identifies hazards which, if not avoided, could result in minor or moderate injury or damage to the equipment.

NOTICE

This symbol identifies important information, practices or actions.



This pictorial alert you to the need read the manual, possibly at a different section.

2.0 Introduction to the Unit

The Chlorine Pocket Photometer (the instrument hereafter) allows you to measure the concentration of chlorine in water and is designed to meet the specifications set out by Standard Methods for the Examination of Water and Wastewater (21st Edition) Method 4500-Cl G and EPA 334.0. DPD Colorimetric Method. The Pocket Photometer uses a 515nm LED at the measurement light source.

2.1 Specifications

Call customer service if you need assistance with technical details.

Measurement Range	0-10 mg/l (PPM)
Resolution	0.01 mg/l full range
Regulatory Compliance	US Standard Methods EPA Approved
Response Time	Less than 5 seconds
Display	7 Segment Liquid Crystal Display
Operating Temperature Range	0°C – 50°C (32°F – 122°F)
Sample Temperature Range	0°C – 50°C (32°F – 122°F)
Relative Humidity	0-90% Non Condensing
Power Supply	4 – AAA Batteries (life is approximately 1000 readings using standard alkaline batteries)
Certification	CE
Insulation Rating	Pollution Degree 2
Approximate Dimensions	Instrument: 7 cm x 16.5 cm x 4.8 cm (2 ¾" x 6 ½" x 1 7/8") Instrument in Minilab Case
Enclosure Rating	NEMA 4X Designed to meet the specifications of IP67
Shipping Weight	1.22 kg (2.70 lbs)
Shipping Dimensions	28 cm x 30.5 cm x 7.6 cm (11" x 12" x 3")
Warranty	1 Year from date of shipment

2.3 Unpacking and Inspection of the Instrument and Accessories

You should find the following items in your shipment.

Item	Quantity
Pocket Photometer with 4 AAA batteries installed	1
Instruction Manual	1
Instrument Carrying Case	1
Disposable Cuvettes with Caps	4
PPD-2 Powder Pop Dispenser Included with Catalog No. 10472 and 10473	1

Remove the instrument from the packing carton. Carefully inspect all items to ensure that no visible damage has occurred during shipment. If the items you received do not match your order, please immediately contact your local distributor or the HF scientific Customer Service department.

NOTICE

Extra care should be taken when handling the disposable cuvettes: surface scratches or finger smudges on the cuvette surface may cause measurement errors. Handle these items only by the ridged sides; do not touch the clear optical sides.

NOTICE

The instrument is shipped with the batteries installed.

Figure 1 is a depiction of the top of the instrument. The three main components of the instrument are the sample well, the display, and the touch pad. The proper use of the instrument and the sample well will be discussed in later sections.

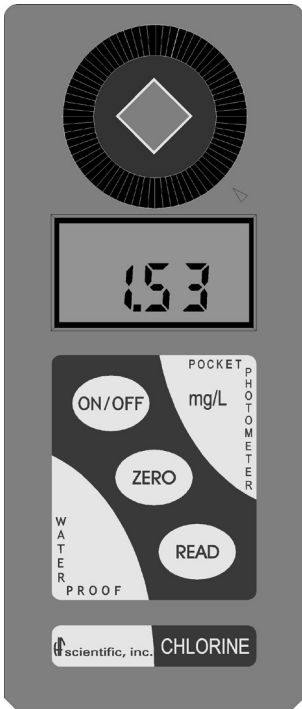


Figure 1:

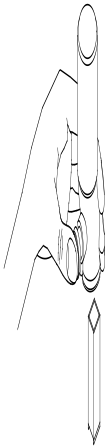


Figure 2:

Figure 2 is a depiction of the PPD-2 Powder Pop Dispenser. The following sections will describe the functionality of the Dispenser and its relationship with the Pocket Photometer.

The Powder Pop Dispenser is an important accessory to the instrument, providing convenient and accurate doses of DPD reagent on demand.

To use the Dispenser, simply flip the protective cap out of the way, invert the dispenser and shake gently, place over the top of the cuvette then firmly, depress the Dispenser button to deliver the reagent. The protective cap should be replaced after use.

2.4 Display

All of the items that can appear on the display are shown in Figure 3. The display is used for reporting the chlorine concentration level and to provide user guidance. The display also has other icons that are used to communicate various messages.

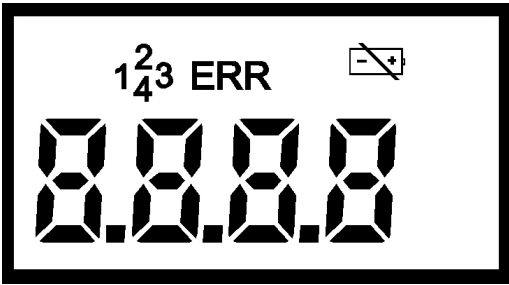


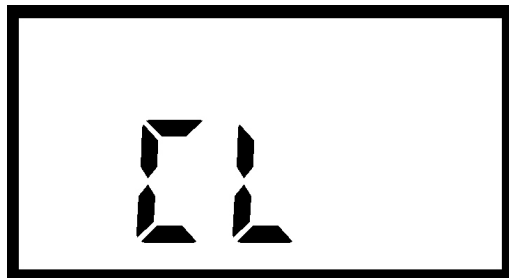
Figure 3: Display used in the instrument

2.5 The Instrument and Touch Pad (see Figure 1)

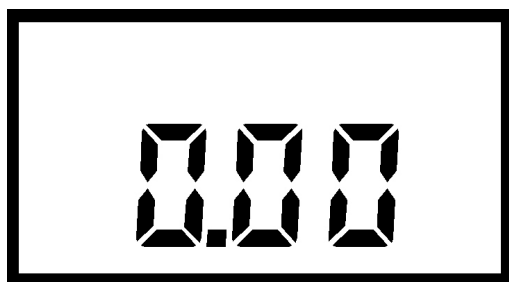
The touch pad has three buttons: ON/OFF, ZERO, and READ. The ON/OFF button is used to turn the instrument on and off. The ZERO button is used to establish a base reading (ZERO) for the water to be tested. The READ button is pressed to take a reading after color has been developed in the sample.

3.0 Normal Operation

This instrument allows you to measure the concentration of free or total chlorine in a grab sample of water. Readings are reported in milligrams per liter mg/l which are numerically equivalent to parts per million (PPM). The stated range of the instrument is 0-10 mg/l



After Pressing ON/OFF Button



After Pressing Zero Button

3.1 Routine Measurement

The instrument measures and reports the concentration of free or total chlorine of a sample in milligrams per liter (mg/l).

NOTICE

Milligrams per liter (mg/l) are numerically equivalent to parts per million (PPM).

1. Turn on the instrument by pressing the ON/OFF button continuously for 1 second until the display light up with the reagents.

STEP 1-ZERO the instrument

- a. Rinse a sample cuvette three times with a sample of the water to be measured. After rinsing, fill the cuvette to within 1/2" of the top. Do not overfill. Wipe off any water making sure that the sides and bottom of the cuvette are dry and that the optical sides are clean.
- b. Place the cuvette in the optical well with one of the clear optical sides facing the indicating arrow.
- c. Press the ZERO button.

STEP 2 – Add Reagent to the sample

- a. Remove the cuvette with the sample from the instrument.
- b. Invert the PPD-2 Powder Pop Dispenser and shake gently to ensure that the proper amount of reagent is available. Remove the "snap cap" from the Dispenser bottom; place the Dispenser over the top of cuvette. Fully and firmly, depress the Dispenser button to discharge the reagent.
- c. Mix the reagent in the water sample by capping the cuvette and inverting it at least three times.

STEP 3 - Measure the Chlorine Concentration

- a. Replace the cuvette in the optical well with one of the optical sides facing the indicating arrow.
- b. If testing for Free Chlorine Read sample within 30 seconds, immediately press the READ button and note the concentration.
- c. If testing for Total Chlorine, wait two minutes for the completion of the chemical reaction between the sample and the reagent. Press the READ button and note the concentration.

If additional samples are desired of the same sample water, step 1 can be omitted, and new readings can be taken, provided the Pocket Photometer was not turned off & did not time out.

CAUTION

NEVER pour liquid directly into the sample well of the instrument always use a cuvette.

NOTICE

The instrument will turn off after approximately 5 minutes if no buttons are pressed.

4.0 Instrument Calibration

The instrument was calibrated and tested prior to leaving the factory and is suitable for accurate use directly out of the box.

We have 1 PPM, 2 PPM, and 4 PPM standards available. The user should purchase closest to the measurement range to check the instrument calibration.

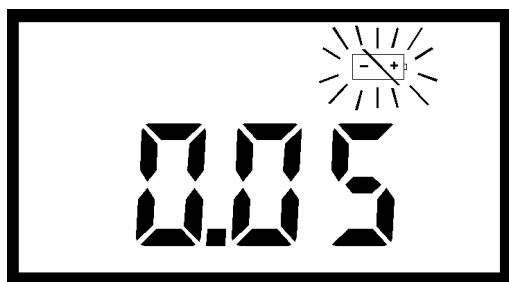
5.0 Troubleshooting

The instrument routinely performs self-diagnostics, and will automatically generate messages to provide you with specific diagnostic information.

5.1 System Warning Messages

Automatic warning messages are generated to provide you with specific diagnostic information about the instrument. These messages are for your use and do not indicate a reduction in the performance of the instrument or a failure of any component in the instrument.

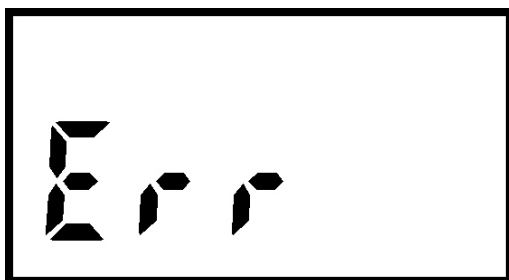
Battery Symbol: A battery on the display indicates that the batteries need to be replaced. Under this condition, you should replace the batteries as soon as possible to ensure that the instrument will continue to function properly. A flashing battery symbol indicates that the batteries will fail very shortly. If the batteries get too low to accurately measure, the instrument will turn off. The instrument might not turn back on until the batteries have been replaced. **See section 6.2 for more information.**



5.2 System Error Messages

There are two conditions for errors if the ERR icon is lit after turning the instrument on, the onboard diagnostics have determined that there is a system error. Call HF Technical Services for assistance as shown below.

If the case is the large word Err, the problem is usually due to an improper zero. Turn the instrument off and repeat the three steps outline in section 3.0.



If the reading displays a flashing 10.0, the reading is over the measurement range of this instrument.

5.3 System Error Messages

If you need assistance regarding this instrument please contact the HF scientific, Technical Service Department.

HF scientific

16260 Airport Park Dr.

Suite 140

Fort Myers, FL 33913

Phone: 1-239-337-2116

Toll Free: 1-888-203-7248

Fax: 1-239-454-0694

Email: hf.info@wattswater.com

www.hfscientific.com

6.0 Routine Maintenance

If you do not plan on leaving the instrument in the supplied carrying case, when not in use, ensure that the instrument has been turned off and that a clean sample cuvette fitted with a black cap has been placed in the sample well. This will reduce the amount of dust and/or debris will be able to settle on the optics of the instrument.

6.1 Cuvette Cleaning and Care

Proper measurement of colorimetric, samples requires the use of cuvettes that are free of marks, smudges, scratches and any bacterial growth.

6.2 Cuvette Cleaning and Care

The instrument will periodically require new batteries to function properly. This will be indicated with a flashing battery indicator on the display. To replace the batteries:

1. Turn the instrument off and place it upside down on a soft surface.
2. Remove the two screws (A) securing the battery cover (B). Lift cover off.
3. Remove the old batteries. Place four new AAA batteries (C) into the battery compartment (ensuring the correct polarity).
4. Replace the battery cover and fasten the two screws carefully to ensure a watertight seal.
5. Dispose of used batteries in accordance with all federal, state and local regulations.

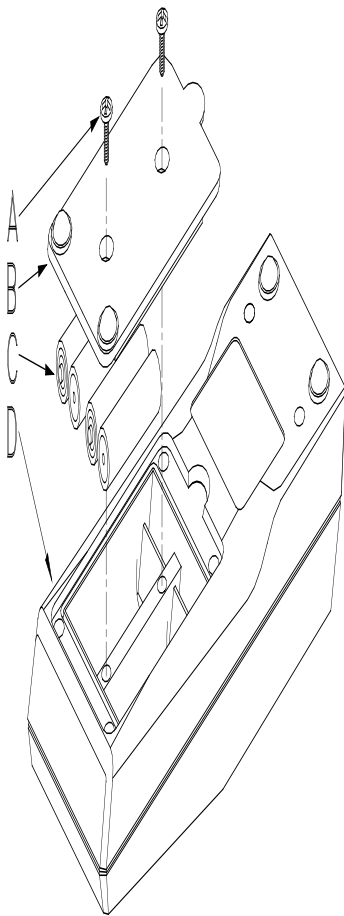


Figure 3: Detailed view of the battery compartment

7.0 Accessories and Replacement Parts List

The items shown below are recommended accessories and replacement parts for the instrument.

Accessory	Catalog Number
PPD-2 Powder Pop Dispenser Total 0-20 mg/L (1 pack 200 tests each)	10508
Disposable Cuvettes with Caps (Package of 100)	10431
Reference Standard Solution (2PPM)	10451A
Reference Standard Solution (1PPM)	10452
Reference Standard Solution (4PPM)	10462
Operators Manual	21885
Rechargeable Battery Kit	19859

To order any accessory or replacement part, please contact the HF scientific Customer Service Department. **See section 5.3 for contact information.**



NOTICE

Watts is not responsible for failure of alerts due to connectivity issues, power issues, or improper installation.

8.0 Warranty

The online warranty for this product is located on the Watts website (<https://www.watts.com/resources/warranty-information>), and in the event that the terms or conditions of this manual conflict with the online warranty, the terms and conditions of the online warranty shall control. HF scientific, LLC (the "Company") warrants each municipal market instrument product to be free from defects in material and workmanship under normal usage for a period of one (1) year from first use or two (2) years from date of the Company's invoice from the original sale of the product, whichever occurs first. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge. Parts which by their nature are normally required to be replaced periodically, consistent with normal maintenance, specifically reagents, desiccant, sensors, electrodes and fuses, are excluded. Also excluded are accessories and supply-type items.

Proof of purchase from the Company (Company invoice or paid order confirmation) and/or first use (commissioning) must be provided when making a product warranty claim.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. In addition, the Company shall not be responsible for any costs incidental to the Company's warranty response efforts, including, without limitation, costs associated with the removal and replacement of systems, structures or other parts of facilities, de-installation, decontamination and re-installation of products, or transportation of products to and from the Company. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance of the product, alteration of the product or use of any parts or accessories (including but not limited to reagents) not provided by the Company.

Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. **SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.**

8.1 Waterproof Seal

Opening the main instrument enclosure (excluding the battery compartment) may void the warranty.



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