

Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features
- Ideal for field applications

HANNA's line of portable photometers includes instruments to measure ammonia, chlorine at several ranges, copper, anionic detergents, fluoride, iron, nitrite, phosphate, phosphorus, and more. This series features an advanced optical system and HANNA's exclusive CAL CHECK™ validation function. The advanced optical system is based on a special tungsten lamp/LED–Light Emitting Diode and a narrow band interference filter assuring accurate readings every time.

With the exclusive CAL CHECK™ validation function, users are able to verify the performance of the instrument at any time. Taking just a few short steps, the validation procedure is extremely user friendly and ensures that the meter is properly calibrated. Just use the exclusive HANNA ready-made, NIST traceable standards to verify the performance of the instrument and recalibrate as necessary. All instruments are factory calibrated and the electronic and optical design minimizes the need for frequent calibration.

The cuvette is made from special optical glass to obtain best results and an exclusive positive-locking system ensures that the cuvette is in the same position every time it is placed into the measurement cell. The cell is designed to fit a wide mouth cuvette making it easier to add both samples and reagents.

The reagents are in powder or liquid form and the amount of reagent is precisely dosed to ensure maximum repeatability.

SOLUTIONS

HI 93703-50 Cuvette cleaning solution, 230 mL

ACCESSORIES

HI 731318 Cuvette cleaning cloth (4)
HI 731331 Measuring cuvettes (4)
HI 731335 Cuvette caps (4)
HI 740318 Carrying case for HI 96 series



CAL CHECK™ Validation*

2-step validation procedure for proper calibration.

Zero the meter prior to validation...

Place the CAL CHECK™ Standard A into the cuvette holder and press ZERO/CFM. The lamp, cuvette and detector icons will appear on the display followed by "-0.0-". The meter is now zeroed and ready for validation.

... and compare accuracy against a known standard.

Place the CAL CHECK™ standard B into the cuvette holder and press CAL CHECK™. The lamp, cuvette and detector icons together with "CAL CHECK" will appear on the display. At the end of the measurement the display will show the validation standard value.

CAL CHECK™ Calibration*

Calibrate your instrument quickly and easily.

Zero the meter prior to calibration...

Press and hold CAL CHECK™ for three seconds to enter calibration mode. Place the CAL CHECK™ Standard A into the cuvette holder and press ZERO/CFM. The lamp, cuvette and detector icons will appear on the display followed by "-0.0-". The meter is now zeroed and ready for calibration.

... and calibrate to a known standard.

Place the CAL CHECK™ Standard B into the cuvette holder. Press READ/► and the lamp, cuvette and detector icons will appear on the display. After measurement the instrument will show the CAL CHECK™ Standard value.

GENERAL SPECIFICATIONS

Power Supply	9V battery
Auto-off	after 10 minutes of non-use in measurement mode; after 1 hour of non-use in calibration mode; with last reading reminder.
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)

Each CAL CHECK™ cuvette is clearly labeled with its respective measurement. Please read the full instruction manual before validation/calibration.

Aluminum Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Aluminum is the most abundant metal and the third most abundant element in the Earth's crust, behind only oxygen and silicon. It is a lightweight, silvery metal, familiar to every household in the form of pots and pans, beverage cans, and aluminum foil. It is nontoxic, corrosion resistant, non-magnetic, and easy to form or cast into a variety of shapes. It is one of the most useful metals we have.

In spite of the fact that aluminum is very active chemically, it does not corrode in moist air the way iron does. Instead, it quickly forms a thin, hard coating of aluminum oxide.

Aluminum is used in water purification because when it reacts with lime (or any base), it forms a sticky precipitate of aluminum hydroxide that sweeps out tiny particles of impurities.

HI 96712 measures the aluminum content in water and wastewater in the 0.00 to 1.00 mg/L range.

The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

Many food-packaging materials and shiny plastic novelties are made of paper or plastic with an evaporated coating of bright aluminum.

In fact, cooking even weakly acidic foods such as tomatoes in an aluminum pot can dissolve enough aluminum to give the dish a "metallic" taste. Aluminum also dissolves in strong bases such as sodium hydroxide, commonly known as lye. Most oven cleaners, which are designed to work on steel and porcelain, contain sodium or potassium hydroxide, in which case, it is in the user's best interest to refrain from handling the aluminum parts of the cookware. Some commercial drain cleaners contain lye mixed with shavings of aluminum metal.

SPECIFICATIONS	HI 96712 Aluminum
Range	0.00 to 1.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.02 mg/L ±4% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the aluminon method

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96712 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96712-11 CAL CHECK™ standard cuvettes
- HI 93712-01 Reagents for 100 tests
- HI 93712-03 Reagents for 300 tests

HI 96700 • HI 96715 • HI 96733

Ammonia Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96700 and HI 96715 meters measure the ammonia-nitrogen ($\text{NH}_3\text{-N}$) content in water samples. The HI 96733 measures the ammonium ion (NH_4^+) content in water, wastewater and seawater.

These meters use an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

Ammonia is often an excellent indication of the presence of animal or plant microbiological decay. It is tested in fish farms (fresh and salt water tanks) due to the damaging effects of its toxic nature. Its presence in rivers and reservoirs normally points to agricultural and/or civil pollutants. Ammonia is tested in lakes, rivers, portable water, boiler feed water, sewage, industrial and waste water.



Ammonia - nitrogen, in the form of NH_3 and NH_4^+ , is often present in water as a component of nitrogen cycle. In the metabolism of proteins and amino acids, many heterotrophic bacteria, actinomycetes, and fungi (occurring in both soil and water) excrete what for them is excess nitrogen: ammonia. Generally, in unpolluted waters, ammonia and ammonium compounds occur in relatively small quantities, on the order of 0.1 mg/L, while higher levels usually indicate organic pollution. Ammonia is also recognized to be toxic to diatoms in the 7.4-8.5 pH range at a level of 1.1 mg/L, and to fish, in the same pH range, at a level of 2.5 mg/L.

ORDERING INFORMATION

HI 96700, HI 96715 and HI 96733 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96700C, HI 96715C and HI 96733C includes photometer, sample cuvettes (2) with caps, 9V battery, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For HI 96700

- HI 96700-11 CAL CHECK™ standard cuvettes
- HI 93700-01 Reagents for 100 tests (N-NH_3 LR)
- HI 93700-03 Reagents for 300 tests (N-NH_3 LR)

For HI 96715

- HI 96715-11 CAL CHECK™ standard cuvettes
- HI 93715-01 Reagents for 100 tests (N-NH_3 MR)
- HI 93715-03 Reagents for 300 tests (N-NH_3 MR)

For HI 96733

- HI 96733-11 CAL CHECK™ standard cuvettes
- HI 93733-01 Reagents for 100 tests (NH_4^+ HR)
- HI 93733-03 Reagents for 300 tests (NH_4^+ HR)

SPECIFICATIONS	HI 96700 Ammonia LR	HI 96715 Ammonia MR	HI 96733 Ammonia HR
Range	0.00 to 3.00 mg/L (ppm) (as $\text{NH}_3\text{-N}$)	0.00 to 9.99 mg/L (ppm) (as $\text{NH}_3\text{-N}$)	0.0 to 50.0 mg/L (ppm) (as NH_4^+)
Resolution	0.01 mg/L (ppm)	0.01 mg/L (ppm)	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.04 mg/L ±4% of reading	±0.05 mg/L ±5% of reading	±0.5 mg/L ±5% of reading
Light Source	tungsten lamp	light emitting diode	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 420 nm	silicon photocell with narrow band interference filter @ 466	silicon photocell with narrow band interference filter @ 420 nm
Power Supply	9V battery		
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder		
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing		
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")		
Weight	360 g (12.7 oz.)		
Method	adaptation of the ASTM Manual of Water and Environmental Technology, D1426-92, Nessler method		

The reagents are in liquid form and are supplied in bottles. The amount of reagents is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Anionic Surfactants Portable Photometer

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Detergents are among the most common water pollutants, discharged as a consequence of laundering or cleaning processes, either from households or industrial origin. Detergents are mainly preparations or mixtures of linear alkyl sulfonates and other additives that help to remove grease and dirt.

These compounds and their foams are inconvenient in water dischargers because they interfere with transfer of the air to the water. In addition, they may deflocculate colloids, promote the flotation of the solids, emulsify oil and grease, lower the level of dissolved oxygen through biodegradation, and have a negative aesthetic impact. They can also destroy the natural water-repellent protective coating of aquatic animals and birds. In large concentrations, detergents may cause the death of aquatic plants and animals.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Surfactants are produced in large quantities and are widely used in many applications. Due to their common use, surfactants are introduced into the water supply through domestic and industrial drains.

Surfactants are harmful to water treatment plants, due to the scum that is created by emulsifying oil and grease. So, by law, surfactant concentrations must be monitored in wastewaters.

The HI 96769 measures anionic surfactants in drinking, surface and waste waters. The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.

SPECIFICATIONS	HI 96769 Anionic Surfactants
Range	0.00 to 3.50 mg/L (ppm) as SDBS
Resolution	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.04 mg/L ±3% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 610 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the USEPA method 425.1 and Standard Methods for the Examination of Water and Wastewater, 20th edition, 5540C, Anionic Surfactants as MBAS

The reagent is in liquid form and is supplied in bottles. The amount of reagent is precisely dosed by use of the supplied pipettes to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96769 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96769C includes HI 96769 photometer, sample cuvettes (2) with caps, 25 mL glass vial with cap, plastic pipettes (3), 9V battery, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96769-11** CAL CHECK™ standard cuvettes
HI 93769-01 Reagent for 40 anionic surfactants tests

HI 96716

Bromine Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

In many countries, bromine sanitizing has been introduced as an alternative for chlorine. Although it is not as strong as chlorine, bromine remains stable at higher temperatures (advantageous for heated pools and hot tubs), and higher pH levels. Furthermore, it has little reaction to nitrogen compounds, thus reducing the unpleasant odor and eye irritation problems associated with pool water sanitation. The main disadvantage of bromine is the slower acting disinfecting power, making it less suitable for larger pools.

The HI 96716 meter measures the bromine content in water samples in the 0.00 to 10.00 mg/L (ppm) range. The HI 96 series portable photometers use an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.



The Alternative to Chlorine

Bromine is often used instead of chlorine as a disinfectant because of its less volatile nature. Its action has more effective results when the pH value is above 7.4, and the main application is pools, spas and hot tubs. Like all chemicals used for this purpose, the concentration must be within acceptable limits, which can vary according to the application.

ORDERING INFORMATION

HI 96716 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96716C includes HI 96716 photometer, sample cuvettes (2) and caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96716-11 CAL CHECK™ standard cuvettes

HI 93716-01 Reagents for 100 tests

HI 93716-03 Reagents for 300 tests

SPECIFICATIONS	HI 96716 Bromine
Range	0.00 to 10.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.08 mg/L ± 3% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 20th edition, DPD method

The reagent is in powder form and is supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Chloride Portable Photometer

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Chloride is a major constituent of sea water and is extremely corrosive in acidic environments. It requires close monitoring in applications such as marine boiler systems that are prone to seawater contamination.

Chlorides are used by the water treatment professional to determine cycles of concentration in low pressure boilers and cooling systems. Merchant and ocean going passenger vessels need to ensure that chloride contamination of engine cooling systems and boilers does not occur.

Due to the range limit, HI 96753 can be also used in sea water applications if the sample is diluted accordingly.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Chloride ions are one of the major inorganic anions in water and wastewater. Although high concentrations of chloride in water are not known to be toxic to humans, its regulation is mainly due to adverse effects on taste. It is essential to monitor chloride concentrations in boiler systems to prevent metal parts from being damaged. In high levels, chloride can corrode stainless steel. The level of chloride concentrations in boiler and cooling towers varies from small quantities to very high levels. Furthermore high levels of chloride can be toxic to plant life.

Chlorides are the salts of hydrochloric acid with a metal. Some common examples are sodium chloride (NaCl), ammonium chloride (NH₄Cl), calcium chloride (CaCl₂), and magnesium chloride (MgCl₂). When dissolved in water, these salts produce chloride ions, Cl⁻.

The HI 96753 meter measures the chloride content in water and wastewater samples. This meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

SPECIFICATIONS	HI 96753 Chloride
Range	0.0 to 20.0 mg/L (ppm)
Resolution	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.5 mg/L ±6% of reading
Light Source	light emitting diode
Light Detector	silicon photocell with narrow band interference filter @ 466 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the mercury (II) thiocyanate method

ORDERING INFORMATION

HI 96753 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96753C includes HI 96753 photometer, sample cuvettes (2) with caps, 9V battery, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96753-11 CAL CHECK™ standard cuvettes
- HI 93753-01 Reagents for 100 tests
- HI 93753-03 Reagents for 300 tests

For a complete list of Reagents, see Reagents Section 18.

HI 96738

Chlorine Dioxide Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Chlorine dioxide is used primarily as a disinfectant in drinking water and also in various industrial processes. In drinking water applications, it is gaining popularity over chlorine, considering that it does not generate trihalomethanes when reacting with organic compounds. In industrial applications, it is used as a bleaching agent in such applications as pulp and paper.

The HI 96738 meter measures the chlorine dioxide content in water samples in the 0.00 to 2.00 mg/L range. This meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

Chlorine Dioxide is a highly effective, eco-friendly microbicide that carries a number of important regulatory approvals from several international organisations including the US EPA, FDA and UK Government for many of its uses.

Chlorine and bromine react rapidly with microbiological species and chemicals in water. This reactivity is both their strength and weakness. Since chemical reactions are usually the first to take place, only the small residual of the product remaining after the chemical reaction is completed is available for microbiological control.

Chlorine dioxide is a very safe and potent biocide. It is effective over a wide pH range in both hard and soft water and does not react with most other water treatment chemicals.

ORDERING INFORMATION

HI 96738 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96738C is supplied with HI 96738 photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96738-11 CAL CHECK™ standard cuvettes

HI 93738-01 Reagents for 100 tests

HI 93738-03 Reagents for 300 tests



Chlorine dioxide, ClO_2 , is a stable oxide and can be prepared by reducing chlorates or in reaction with moist oxalic acid. Chlorine dioxide is a strong oxidizing agent toward both organic and inorganic materials.

Chlorine dioxide is an extremely effective oxidizing biocide used in the disinfection of tanked potable water and for high shock dose chemical cleaning.

The local authorities has set guidelines for the concentration of total oxidants present in potable water, with particular reference to the use of chlorine dioxide, produced at high concentration via generators, then blended with the distributed water supply.

SPECIFICATIONS	HI 96738 Chlorine Dioxide
Range	0.00 to 2.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.10 mg/L ±5% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 575 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	Chlorophenol Red method

The reagents are liquid / powder form and are supplied in bottles / packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Chlorine, Free Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96701 meter measures the free chlorine (Cl_2) content in water samples in the 0.00 to 5.00 mg/L (ppm) range.

HI 96762 was specially developed to measure low concentrations of free chlorine in drinking water.

These meters use an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

Chlorine is widely used in making many everyday products, but most notably, it is used for producing safe drinking water the world over. Even the smallest water supplies are now usually chlorinated. It is also extensively used in the production of paper products, dyestuffs, textiles, petroleum products, medicines, antiseptics, insecticides, food, solvents, paints, plastics, and many other consumer products. Most of the chlorine produced is used in the manufacture of chlorinated compounds for sanitation, pulp bleaching, disinfectants, and textile processing.

Organic chemistry demands much from chlorine, both as an oxidizing agent and in substitution, since it often brings many desired properties in an organic compound when substituted for hydrogen, as in one form of synthetic rubber.

SPECIFICATIONS	HI 96701 Chlorine, Free	HI 96762 Chlorine, Free Low Range
Range	0.00 to 5.00 mg/L (ppm)	0.000 to 0.500 mg/L (ppm)
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L (ppm); 0.10 mg/L above 3.50 mg/L (ppm)	0.001 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading	±0.020 mg/L ±3% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G	

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96701 and HI 96762 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96701C and HI 96762C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96701

HI 96701-11 CAL CHECK™ Standard Cuvettes

HI 93701-01 Reagents for 100 tests

HI 93701-03 Reagents for 300 tests

HI 96762

HI 96762-11 CAL CHECK™ Standard Cuvettes

HI 95762-01 Reagents for 100 tests

HI 95762-03 Reagents for 300 tests

HI 96771

Chlorine, Free Ultra High Range Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

HI 96771 has been developed to check chlorine dosing in disinfection processes with ultra high concentrations of chlorine. Thanks to the extended range from 0 to 500 mg/L (ppm), it is ideal for the food industry, such as in fruit and vegetable washing.

The HI 96771 meter measures the free chlorine (Cl_2) content in water samples and chlorine ultra high range. The methods are an adaptation of Standard Methods for the Examination of Water and Wastewater, 20th edition, 4500-Cl.

The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.



Exposure to chlorine, hypochlorous acid, and hypochlorite ions through ingestion of household bleach occurs most commonly with children. Intake of a small quantity of bleach generally results in irritation of the oesophagus, a burning sensation in the mouth and throat, and spontaneous vomiting. In these cases, it is not clear whether it is the sodium hypochlorite or the extremely caustic nature of the bleach that causes the tissue injury.

The effects of heavily chlorinated water on human populations exposed for varying periods were summarized in a report that was essentially anecdotal in character and did not describe in detail the health effects observed. It has been reported that asthma can be triggered by exposure to chlorinated water. Episodes of dermatitis have also been associated with exposure to chlorine and hypochlorite.

ORDERING INFORMATION

HI 96771 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96771C includes HI 96771 photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 95771-11 CAL CHECK™ Standard Cuvettes
- HI 93701-01 Reagents for 100 tests
- HI 93701-03 Reagents for 300 tests
- HI 95771-01 Reagents for 100 tests
- HI 95771-03 Reagents for 300 tests

SPECIFICATIONS	HI 96771 Chlorine, Free and Ultra High Range	
	Chlorine, Free (P1)	Chlorine, UHR (P2)
Range	0.00 to 5.00 mg/L (ppm)	0 to 500 mg/L (ppm)
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L (ppm); 0.10 mg/L above 3.50 mg/L (ppm)	1 mg/L from 0 to 200 mg/L (ppm); 10 mg/L above 200 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading	±3 mg/L ±3% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 466 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of Standard Methods for the Examination of Water and Wastewater, 20th edition, 4500-Cl	

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Chlorine, Total Portable Photometers

10

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96711 meter measures the free and total chlorine (Cl_2) content in water and wastewater. The HI 96761 meter measures the traces of total chlorine (Cl_2) content in drinking water samples.

This meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

Chlorine is integrated into water supplies in its molecular form for the purpose of destroying unwanted microorganisms. Once introduced to the water, chlorine will form into three different forms; free chlorine, hypochlorous acid, and hypochlorous ions. Free chlorine will combine itself with ammonia and nitrogen compounds, creating combined chlorine. When chlorine and ammonia combine, it creates chloramines (monochloramine, dichloramine, and nitrogen trichloride). Proper testing should be administered when chlorinating any water supply, as potentially harmful compounds such as chloroform may be formed. N, N-diethyl-p-phenylenediamine (DPD) as well as other methods are available for measuring total residual chlorine.

SPECIFICATIONS	HI 96711 Chlorine, Free and Total	HI 96761 Chlorine, Total Low Range
Range	0.00 to 5.00 mg/L (ppm)	0.000 to 0.500 mg/L (ppm)
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L (ppm); 0.10 mg/L above 3.50 mg/L (ppm)	0.001 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading	±0.020 mg/L ±3% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G	

ORDERING INFORMATION

HI 96711 and HI 96761 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96711C and HI 96761C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96711

HI 95701-11 CAL CHECK™ standard cuvettes

HI 93701-01 Reagents for 100 tests

HI 93701-03 Reagents for 300 tests

HI 96711-11 CAL CHECK™ standard cuvettes

HI 93711-01 Reagents for 100 tests

HI 93711-03 Reagents for 300 tests

HI 96761

HI 96761-11 CAL CHECK™ Standard cuvettes

HI 95761-01 Reagents for 100 tests

HI 95761-03 Reagents for 300 tests

For a complete list of Reagents, see Reagents Section 18.

HI 96723 • HI 96749

Chromium VI HR and LR Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

At normal temperatures chromium is corrosion-resistant. For this reason, it plays an important role in the plating industry as well as cooling towers. In addition, it has certain qualities that make it useful in the production processes of the textile industry.

The HI 96723 and HI 96749 meters measure the hexavalent chromium (Cr VI) content in water and waste waters samples.

The meters use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell.



All compounds of chromium are colored; the most important are the chromates of sodium and potassium and the dichromates and the potassium and ammonium chrome alums. The dichromates are used as oxidizing agents in quantitative analysis, also in tanning leather.

Another compound of industrial value is lead chromate which is chrome yellow, a valuable pigment.

Chromium compounds are used in the textile industry as mordants, and by the aircraft and other industries for anodizing aluminum.

ORDERING INFORMATION

HI 96723 and HI 96749 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96723-11 CAL CHECK™ standard cuvettes
- HI 96749-11 CAL CHECK™ standard cuvettes
- HI 93723-01 Reagents for 100 tests
- HI 93723-03 Reagents for 300 tests
- HI 93749-01 Reagents for 100 tests
- HI 93749-03 Reagents for 300 tests

SPECIFICATIONS	HI 96723 Chromium VI High Range	HI 96749 Chromium VI Low Range
Range	0 to 1000 µg/L (ppb)	0 to 300 µg/L (ppb)
Resolution	1 µg/L (ppb)	1 µg/L (ppb)
Accuracy @ 25°C (77°F)	±5 mg/L ±4% of reading	±1 mg/L ±4% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the ASTM Manual of Water and Environmental Technology, D1687-92, diphenylcarbohydrazide method. The reaction between Cr VI and reagents causes a purple tint in the sample	

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Color of Water Portable Photometer

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Apparent color is the color of the whole water sample, and consists of color from both dissolved and suspended components. **True color** is measured after filtering the water sample to remove all suspended material.

The presence of color in water does not necessarily indicate that the water is not potable. Color-causing substances such as tannins may be harmless.

Color is not removed by typical water filters; however, slow sand filters can remove color, and the use of coagulants may also succeed in trapping the color-causing compounds within the resulting precipitate.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Color together with odor, taste and turbidity form an integral part of our sensory system.

Testing for color can be a quick and easy test which often reflects the amount of organic material in the water, although certain inorganic components like iron or manganese can also impart color.

The HI 96727 measures the true and apparent color in water and wastewater in the 0 to 500 PCU (Platinum Cobalt Units) range.

The HI 96727 uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.

SPECIFICATIONS	HI 96727 Color of Water
Range	0 to 500 PCU (Platinum Cobalt Units)
Resolution	10 PCU
Accuracy @ 25°C (77°F)	±10 PCU ±5% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 420 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	Colorimetric Platinum Cobalt method

ORDERING INFORMATION

HI 96727 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96727-11 CAL CHECK™ standard cuvettes
0.45 nm membrane for true color measurement

For a complete list of Reagents, see Reagents Section 18.

HI 96747 • HI 96702

Copper Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

HI 96747 is a auto-diagnostic photometer engineered to measure a wide range of copper concentrations. Due to the specially formulated powder reagent with long-term stability, copper analysis is possible even where iron and calcium is present, such as in sea water.

The HI 96702 meter measures the copper content in water and wastewater.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.



Copper is one of the most abundant metals in the earth's crust. Because of its malleability, thermal and electrical conductivity, corrosion resistance, and other useful qualities, it is used in a large variety of industrial and technological applications.

Copper is found in effluents and natural water both as suspended solids and salt. A high concentration is toxic for plants and animals, which accounts for its rigorous monitoring by the authorities and industry. Lower concentrations are often employed to contain the growth of plankton and algae.

ORDERING INFORMATION

HI 96747 and HI 96702 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96747C and HI 96702C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96747

HI 96747-11 CAL CHECK™ standard cuvettes

HI 95747-01 Reagents for 100 tests

HI 95747-03 Reagents for 300 tests

HI 96702

HI 96702-11 CAL CHECK™ standard cuvettes

HI 93702-01 Reagents for 100 tests

HI 93702-03 Reagents for 300 tests

SPECIFICATIONS	HI 96747 Copper, Low Range	HI 96702 Copper, High Range
Range	0.000 to 1.500 mg/L (ppm)	0.00 to 5.00 mg/L (ppm)
Resolution	0.001 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.010 mg/L ±5% of reading	±0.02 mg/L ± 4% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 560 nm	silicon photocell with narrow band interference filter @ 575 nm
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the USEPA approved bicinchoninate method	

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Cyanide Portable Photometer

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Measures to Minimize Cyanide Discharge

To meet the public's need for safety, environmental protection, and clean water and air, the ongoing regulatory cycle involves ever-tightening restrictions on hazardous materials and their discharge.

For cyanide users, this is exemplified by more stringent discharge restrictions, stricter storage requirements and mandatory use of cyanide gas sensing/detection systems in some jurisdictions.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96714 meter measures the cyanide concentration in waters. The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit cuvettes with a larger neck making it easier to add both sample and reagents. The cuvettes are made from special optical glass to obtain best results.

Cyanide is a pollutant that originates mostly from metallurgical and galvanic industrial plants. Cyanide is poisonous to human nervous system, and it is therefore imperative to monitor and control its level in potable water. Continuous monitoring in waste effluents is required, and cyanide is removed using alkaline chlorination procedure. Due to this, European norm limit the concentration of cyanide in drinking water to 0.05 mg/L, while the EPA has established that the maximum level is not to exceed 0.2 mg/L.

SPECIFICATIONS	HI 96714 Cyanide
Range	0.000 to 0.200 mg/L (ppm)
Resolution	0.001 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.005 mg/L ±3% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 610 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th edition, Pyridine-Pyrazolone method

The reagents are in powder form and are supplied in bottle/packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96714 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96714-11** CAL CHECK™ standard cuvettes
- HI 93714-01** Reagents for 100 tests
- HI 93714-03** Reagents for 300 tests

HI 96722

Cyanuric Acid Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96722 meter measures the cyanuric acid content in water samples in the 0 to 80 mg/L (ppm) range.

This meter uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit cuvettes with a larger neck making it easier to add both sample and reagents. The cuvettes are made from special optical glass to obtain best results.

Cyanuric acid (CYA) is best known as a stabilizing reagent for chlorine. It is widely applied in swimming pool and spa treatment programs to slow down the decomposition of hypochlorous acid. In outside pool areas, this process is accelerated by the effects of UV rays. When applied properly it can save up to 80% of normal chlorine consumption in pools during peak months.

Cyanuric acid is also used in chlorinated beaches, selective herbicides and whitening agents.



Monitor This Critical Parameter Easily

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ORDERING INFORMATION

HI 96722 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96722-11 CAL CHECK™ standard cuvettes
 HI 93722-01 Reagents for 100 tests
 HI 93722-03 Reagents for 300 tests

SPECIFICATIONS	HI 96722 Cyanuric Acid
Range	0 to 80 mg/L (ppm)
Resolution	1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±1 mg/L ±15% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the turbidimetric method

The reagent is in powder form and is supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Fluoride Portable Photometers

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Fluoride is best known for preventing tooth decay. Water authorities often add fluoride to drinking water to maintain approximately a 1.0 mg/L (ppm) concentration. Fluoride can be found naturally in ground water, particularly if a reservoir is in the proximity of draws of sea water. While fluoride does help prevent tooth decay, too little can be ineffective and too much can cause staining.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96729 meter measures the fluoride (F^-) content in the 0.00 to 2.00 mg/L (ppm) range, in drinking, surface and waste waters. The amount of reagent is precisely dosed by use of the supplied automatic pipette for maximum repeatability.

The HI 96739 meter measures the fluoride (F^-) content in water, wastewater and seawater in the 0 to 20 mg/L (ppm) range.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit cuvettes with a larger neck making it easier to add both sample and reagents. The cuvettes are made from special optical glass to obtain best results.

SPECIFICATIONS	HI 96729 Fluoride LR	HI 96739 Fluoride HR
Range	0.00 to 2.00 mg/L (ppm)	0.0 to 20.0 mg/L (ppm)
Resolution	0.01 mg/L (ppm)	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading	±0.5 mg/L ±3% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 575 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the EPA method 340.1 and Standard Methods for the Examination of Water and Wastewater, 20th edition, SPADNS method	adaptation of the SPADNS method

The reagents are in liquid form and are supplied in bottles. The amount of reagent is precisely dosed by use of the supplied automatic pipette to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96729 and HI 96739 is supplied sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96729C and HI 96739C include photometer, sample cuvettes (2) with caps, 2000 µL automatic pipette with instruction sheet, 9V battery, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 93703-53 Reagent for reducing chlorine concentration

For HI 96729

HI 96729-11 CAL CHECK™ standard cuvettes

HI 93729-01 Reagents for 100 tests

HI 93729-03 Reagents for 300 tests

For HI 96739

HI 96739-11 CAL CHECK™ standard cuvettes

HI 93739-01 Reagents for 100 tests

HI 93739-03 Reagents for 300 tests

HI 96720 • HI 96719

Hardness Standard Method Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features.

The HI 96720 measures the calcium hardness content, as CaCO_3 , in water and wastewater in the 0.00 to 2.70 mg/L (ppm) range.

The HI 96719 measures the magnesium hardness content, as CaCO_3 , in water and wastewater in the 0.00 to 2.00 mg/L (ppm) range.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit cuvettes with a larger neck making it easier to add both sample and reagents. The cuvettes are made from special optical glass to obtain best results.



Water, with exception to distilled water, contains dissolved salts (**magnesium and calcium carbonates**). The concentration of these salts determines the water hardness, which can be expressed in calcium carbonate or magnesium carbonate. The sum of these two represents the total hardness level.

In addition, this parameter is also related to the phenomenon of pipe rusting in water heating and cooling systems, reverse osmosis and demineralization plants.

ORDERING INFORMATION

HI 96720 and HI 96719 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96720C and HI 96719C include photometer, sample cuvettes (2) with caps, 9V battery, 1 mL syringe with tip, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For HI 96720

HI 96720-11 CAL CHECK™ standard cuvettes

HI 93720-01 Reagents for 100 tests

HI 93720-03 Reagents for 300 tests

For HI 96719

HI 96719-11 CAL CHECK™ standard cuvettes

HI 93719-01 Reagents for 100 tests

HI 93719-03 Reagents for 300 tests

SPECIFICATIONS	HI 96720 Ca Hardness	HI 96719 Mg Hardness
Range	0.00 to 2.70 mg/L (ppm)	0.00 to 2.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.11 mg/L ±5% of reading	
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th ed. Calmagite method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th ed. EDTA colorimetric method

The reagents are in liquid form and are supplied in bottles. The amount of reagent is precisely dosed by use of the supplied automatic pipette to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Hardness, EPA Portable Photometer

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Hardness in water is caused by dissolved minerals, primarily divalent cations, including calcium (Ca^{2+}), iron (Fe^{2+}), strontium (Sr^{2+}), zinc (Zn^{2+}), and manganese (Mn^{2+}). Calcium and magnesium ions are usually the only ions present in significant concentrations, therefore, hardness is generally considered to be a measure of the calcium and magnesium content of water. Considerations should be given when other cations contributing to hardness are present in significant amounts.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Total hardness, that is the presence of magnesium and calcium, is due mainly to the runoff water dissolving these salts as it flows or filters through different strata. Hardness can also cause scaling of pipes in cooling and heating systems.

The HI 93735 measures the total hardness in drinking, surface and wastewater.

This meter uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit cuvettes with a larger neck making it easier to add both sample and reagents. The cuvettes are made from special optical glass to obtain best results.

SPECIFICATIONS	HI 96735 Hardness, Total		
	Hardness LR (P1)	Hardness MR (P2)	Hardness HR (P3)
Range	0 to 250 mg/L (ppm)	200 to 500 mg/L (ppm)	400 to 750 mg/L (ppm)
Resolution	1 mg/L from 0 to 100 mg/L, 5 mg/L from 100 to 750 mg/L	5 mg/L	5 mg/L
Accuracy @ 25°C (77°F)	±5 mg/L ±4% of reading	±7 mg/L ±3% of reading	±10 mg/L ±2% of reading
Light Source	light emitting diode		
Light Detector	silicon photocell with narrow band interference filter @ 466		
Power Supply	9V battery		
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder		
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing		
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")		
Weight	360 g (12.7 oz.)		
Method	adaptation of the EPA recommended method 130.1		

The reagents are in liquid and powder form and are supplied in bottles and in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96735 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96735-11	CAL CHECK™ standard cuvettes
HI 93735-00	Reagents for 100 tests (0-250 mg/L)
HI 93735-01	Reagents for 100 tests (200-500 mg/L)
HI 93735-02	Reagents for 100 tests (400-750 mg/L)
HI 93735-0	Reagents for 100 tests (0-750 mg/L)

HI 96785

Honey Color Portable Analyzer

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No More Judging By Eye!

- Immediate results
- Digital readout
- No more judging by eye

The HI 96785 portable microprocessor analyzer measures the percent light transmittance of honey compared to analytical reagent grade glycerol. The transmittance value allows identification of the honey Pfund grade. The instrument directly displays the measurement result expressed in mm Pfund.

Measurements are made using matched square optical cuvettes having a 10 mm light path.

Why this instrument is so important

The natural color of honey presents many tonalities: from straw yellow to amber, from dark amber to almost black with a hint of red. The color of untreated honey originates from the botanical varieties used by the bees: for this reason, its coloration allows one to commercially identify the original floral type.

In addition, the color of honey tends to darken with age or change according to the method of conservation or production used by beekeepers, (for example: the use of old beehives, contact with metals, the temperature of conservation, exposure to light, etc.). The classes of color are expressed in millimeters (mm) on the Pfund scale, compared to an analytical standard scale of reference on the graduation of glycerin.



USDA Color Standards Designations	Color Range Pfund Scales (mm)
Water White	≤ 8 or less
Extra White	> 8 - ≤ 17
White	> 17 - ≤ 34
Extra Light Amber	> 34 - ≤ 50
Light Amber	> 50 - ≤ 85
Amber	> 85 - ≤ 114
Dark Amber	> 114

ORDERING INFORMATION

HI 96785 is supplied with sample cuvettes (5), 9V battery, light shield cap, 30 mL bottle of glycerol, instruction manual.

ACCESSORIES

HI 93703-56 Consists of 82 matched square cuvettes, 30 mL of glycerol and (2) 5 mL syringes (75 tests average)

HI 70662 Cleaning solution for honey meter (30 mL)

SPECIFICATIONS

	HI 96785
Range	0 to 150 mm Pfund
Resolution	1 mm Pfund
Accuracy @ 25°C (77°F)	±2 mm Pfund @ 80mm Pfund
Light Source	tungsten lamps
Light Detector	silicon photocells with narrow band interference filter @ 420 nm and 525 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	direct measure

Hydrazine Portable Photometer

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Hydrazine is an inorganic chemical compound represented by the formula N_2H_4 . It is a colorless, flammable liquid with an ammonia-like odor and is derived from the same industrial chemistry processes that manufacture ammonia. However, hydrazine has physical properties that are closer to those of water.

Hydrazine is highly toxic and dangerously unstable, and is usually handled while in solution for safety reasons.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Hydrazine is a liquid chemical substance normally used in high pressure heating plants because of its properties as an oxygen inhibitor. It is added to avoid scaling and corrosion in the plant itself. Hydrazine reacts with dissolved oxygen to yield nitrogen and water, so that hydrazine has the advantage over the sulfite treatment because it does not produce any dissolved solids in the boiled water. Hydrazine is also used in tanks because it controls the growth of bacteria. Other hydrazine uses include:

- oxygen scavenger for water boiler feed and heating systems to prevent corrosion damage
- energy source in fuel elements
- reducing agent for the recovery of metals (copper, nickel and others)
- intermediate in insecticides, herbicides, explosives, plant growth regulators, pharmaceuticals, dyes, flame-retardants, polymerization catalysts and other chemical products
- component of photo development

The HI 96704 meter measures the hydrazine content in water samples. The method is an adaptation of the ASTM Manual of Water and Environmental Technology, method D1385-88 for natural and treated water.

SPECIFICATIONS	HI 96704 Hydrazine
Range	0 to 400 µg/L (ppb)
Resolution	1 µg/L (ppb)
Accuracy @ 25°C (77°F)	±3% of full scale
Light Source	light emitting diode
Light Detector	silicon photocell with narrow band interference filter @ 466 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the ASTM Manual of Water and Environmental Technology, method D1385-88 for natural and treated water

The reagent is in liquid form and is supplied in dropper bottles. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96704 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96704C includes HI 96704 photometer, sample cuvettes (2) with caps, 9V battery, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96704-11 CAL CHECK™ standard cuvettes
- HI 93704-01 Reagents for 100 tests
- HI 93704-03 Reagents for 300 tests

HI 96718

Iodine Photometerwww.easeongear.com[click to buy: www.hannameters.com](http://www.hannameters.com)

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The disinfectant properties of Iodine have led to its use as an alternative to chlorine and bromine. Unlike chlorinated pools, water treated with iodine decreases eye irritation among swimmers, and provides a level of disinfection more stable to adverse conditions.

However, its toxic and corrosive properties and the difficulties of dissolving it in water has limited its widespread acceptance. One of its most common applications is in poultry industry process water.

HI 96718 uses an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.

The HI 96718 measures the Iodine content in water samples in the 0.0 to 12.5 mg/L (ppm) range. The method is an adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th edition, DPD method.

**ORDERING INFORMATION**

HI 96718 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96718C includes HI 96718 photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96718-11 CAL CHECK™ standard cuvettes

HI 93718-01 Reagents for 100 tests

HI 93718-03 Reagents for 300 tests

SPECIFICATIONS	HI 96718 Iodine
Range	0.0 to 12.5 mg/L (ppm)
Resolution	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.1 mg/L ±5% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th edition, DPD method

The reagent is in powder form and is supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

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Iron is naturally present in water in low concentrations, but it reaches high concentrations in wastewater effluents. The iron concentration in water needs to be monitored because it becomes harmful above certain levels.

In domestic water, for instance, iron can unpleasantly alter the taste, stain laundry, damage kitchenware and favor the growth of certain bacteria. Iron is also an indicator of ongoing corrosion in industrial plants or in water cooling and heating systems. Moreover, iron is normally monitored in mining wastewater to avoid contamination.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96746 meter measures the iron content in water, wastewater and seawater in the 0.00 to 1.60 mg/L (ppm) range.

The HI 96721 meter measures total iron (Fe) content in water samples in the 0.00 to 5.00 mg/L (ppm) range. The reagent contains both a reducing and a complexing agent: the first converts all but very most resistant forms of iron present in the sample to the ferrous (Fe^{2+}) or soluble state; the second reacts with the ferrous iron to form the characteristic orange-colored complex.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.

SPECIFICATIONS	HI 96746 Iron LR	HI 96721 Iron HR
Range	0.00 to 1.60 mg/L (ppm)	0.00 to 5.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.01 mg/L ±8% of reading	±0.04 mg/L ±2% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the TPTZ method	adaptation of the USEPA method 315B and Standard Method 3500-Fe B

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

ORDERING INFORMATION

HI 96746 and **HI 96721** are supplied with sample cuvettes (2) with caps, 9V battery and instructions.

CAL CHECK™ standards and testing reagents sold separately

HI 96746C and **HI 96721C** includes photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For **HI 96746**

HI 96746-11 CAL CHECK™ standard cuvettes

HI 93746-01 Powder reagents for 100 tests

HI 93746-03 Powder reagents for 300 tests

For **HI 96721**

HI 96721-11 CAL CHECK™ standard cuvettes

HI 93721-01 Reagents for 100 tests

HI 93721-03 Reagents for 300 tests

For a complete list of Reagents, see Reagents Section 18.

HI 96748 • HI 96709

Manganese Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Manganese is one of the most common metals present in nature and is used in many industrial applications, for example, the production of fertilizers and in the pharmaceutical industry.

Manganese salts are also used in iron alloys (steel manufacturing) and non-iron alloys as it improves their corrosion resistance and hardness.

The HI 96748 measures the low range manganese content in water and wastewater in the 0 to 300 µg/L (ppb) range.

The HI 96709 measures the high range manganese content in water and wastewater in the 0.0 to 20.0 mg/L (ppm) range.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger neck making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.



Manganese is not considered to be dangerous, but high concentrations of this metal in water will alter the taste and smell. In industry, manganese can produce corrosion and incrustation to pipes when found in high concentrations.

ORDERING INFORMATION

HI 96748 and HI 96709 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96709C includes HI 96709 photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For HI 96748

HI 96748-11 CAL CHECK™ standard cuvettes

HI 93748-01 Reagents for 50 tests

HI 93748-03 Reagents for 150 tests

For HI 96709

HI 96709-11 CAL CHECK™ standard cuvettes

HI 93709-01 Reagents for 100 tests

HI 93709-03 Reagents for 300 tests

SPECIFICATIONS	HI 96748 Manganese, Low Range	HI 96709 Manganese, High Range
Range	0 to 300 µg/L	0.0 to 20.0 mg/L
Resolution	1 µg/L	0.1 mg/L
Accuracy @ 25°C (77°F)	±10 µg/L ±3% of reading	±0.2 mg/L ±3% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the 1-(2-pyridylazo)-2-naphthol PAN method	adaptation of Standard Methods for the Examination of Water and Wastewater, 18th edition, Periodate method

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

HI 96759 • HI 96760

Maple Syrup Photometers

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The HI 96759 and HI 96760 handheld maple syrup transmittance analyzers are high precision, USDA (HI 96759) or Canada Federal and Quebec (HI 96760) compliant photometers that bring judging "by eye" to an end.

These meters benefit from HANNA's years of experience as a manufacturer of analytical instruments. They have the advanced optical system based on special tungsten lamps and a narrow band interference filter that allow most accurate and repeatable readings.

HANNA maple syrup transmittance analyzers measure the percent light transmittance of maple syrup as compared to analytical reagent glycerol. The transmittance value allows identification of syrup quality class.

Measurements are performed by using matched square optical cuvettes having a 10 mm light path.

A very light syrup color has a very high level of quality and can be compared to minimum standards of light transmittance while a very dark syrup color signifies a low level of classification.

MAPLE SYRUP GRADE DESIGNATIONS

RANGE (% TRANSMITTANCE)	United States, USDA	Canada, Federal & Quebec
75.0 to 100.0	grade A light amber	No. 1 Extra Light
60.5 to 74.9	grade A medium amber	No. 1 Light Grade A
44.0 to 60.4	grade A dark amber	No. 1 Medium Grade A
27.0 to 43.9	grade B for reprocessing	No. 2 Amber
less than 27.0	substandard	No. 3 Dark

SPECIFICATIONS

HI 96759 (USA) • HI 96760 (CAN)

Range	0.0 to 100.0% transmittance
Resolution	0.1% transmittance
Accuracy @ 25°C (77°F)	±3% @ 75.0% transmittance
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter 560 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	direct measurement

ORDERING INFORMATION

HI 96759 and HI 96760 are supplied with square sample cuvettes (6), light shield cap, 5 mL syringes (2), 30 mL bottle of glycerol, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

SOLUTIONS

HI 93703-50 Cuvette cleaning solution, 230 mL

ACCESSORIES

HI 93703-56 Consists of 82 matched square cuvettes, glycerol (30 mL) and 5 mL syringes (2) (75 tests average)

HI 96730

Molybdenum Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96730 measures the molybdenum content in water and wastewater. The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both, the measurement and the calibration (zeroing) cuvettes, are optically identical to provide the same measurement conditions. Whenever possible use the same cuvette for both. It is necessary that the surface of the cuvette is clean and not scratched to avoid interference due to unwanted reflection and absorption of light. It is recommended not to touch the cuvette walls with hands.

Furthermore, in order to maintain the same conditions during the zeroing and the measuring phases, it is necessary to close the cuvette to prevent any contamination.



Molybdenum or molybdate are salts often used in industrial cooling towers. They are non-toxic and continue to become more popular over chromates as a corrosion inhibitor. Molybdenum has a wide variety of applications as an alloying agent in steel and cast iron, a pigment for inks and paints and also as a multipurpose solid lubricant.

ORDERING INFORMATION

HI 96730 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96730-11 CAL CHECK™ standard cuvettes
 HI 93730-01 Reagents for 100 tests
 HI 93730-03 Reagents for 300 tests

SPECIFICATIONS	HI 96730 Molybdenum
Range	0.0 to 40.0 mg/L (ppm)
Resolution	0.1 mg/L
Accuracy @ 25°C (77°F)	±0.3 mg/L ±5% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 420 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the mercaptacetic acid method

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Nickel Photometers

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Even though **nickel** is regarded as non-toxic to humans, concentrations found in wastewater exceeding 0.5 mg/L (ppm) can cause damage to certain plants and aquatic life.

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Nickel is commonly utilized by the electroplating industry in processes utilizing stainless steel, cobalt or nickel alloys.

Nickel is also used in batteries, fuel cells and hydrogenation of vegetable oils in the food industry.

The HI 96726 and HI 96740 meters measure the Nickel content in water and wastewater. Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both, the measurement and the calibration (zeroing) cuvettes, are optically identical to provide the same measurement conditions.

SPECIFICATIONS	HI 96740 Nickel LR	HI 96726 Nickel HR
Range	0.000 to 1.000 mg/L (ppm)	0.00 to 7.00 g/L
Resolution	0.001 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.010 mg/L ±7% of reading	±0.07 mg/L ±4% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 575 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the PAN method	adaptation of the photometric method

The reagent is in powder form and is supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96726 and HI 96740 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96726C and HI 96740C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96726-11 CAL CHECK™ standard cuvettes
- HI 96740-11 CAL CHECK™ standard cuvettes
- HI 93726-01 Reagents for 100 tests
- HI 93726-03 Reagents for 300 tests
- HI 93740-01 Reagents for 100 tests
- HI 93740-03 Reagents for 300 tests

HI 96728 • HI 96786

Nitrate Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Nitrates are present in nature as a result of decomposition of organic microorganisms or due to their use as fertilizers. Nitrates reduce to nitrites, which in turn easily combine to form substances dangerous to man.

A maximum level of 45 mg/L (ppm) is established as a worldwide guideline for nitrate concentration in water. In Europe, the maximum consented level of nitrates in potable water is 50.0 mg/L (ppm), while in the USA the EPA has established a guideline for the maximum level of nitrate-nitrogen of 10 mg/L ($\text{NO}_3\text{-N}$), which corresponds to 45.0 mg/L of nitrates.

The HI 96728 and HI 96786 meter measures the nitrate content in water and wastewater.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.



Nitrogen is abundant in Earth's atmosphere, and is present in water in the form of nitrate, nitrite and ammonia. Plants use nitrogen as a nutrient to build proteins by taking it in through their root system. Nitrate is formed in water mainly through rainfall, decomposition of organic matter, and runoff from man made pollutants such as sewage waste and fertilizers.

Almost all the surface waters have some measurable level of nitrate, and a moderate amount is considerate beneficial. Large amounts of nitrate can lead the eutrophication that may result in decreased levels of dissolved oxygen in the water.

ORDERING INFORMATION

HI 96728 and HI 96786 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96728C and HI 96786C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96728-11 CAL CHECK™ standard cuvettes

HI 96786-11 CAL CHECK™ standard cuvettes

HI 93728-01 Reagents for 100 tests

HI 93728-03 Reagents for 300 tests

SPECIFICATIONS	HI 96728 Nitrate (as nitrogen)	HI 96786 Nitrate
Range	0.0 to 30.0 mg/L (ppm)	0.0 to 100 mg/L
Resolution	0.1 mg/L (ppm)	1 mg/L
Accuracy @ 25°C (77°F)	±0.5 mg/L ±10% of reading	±5 mg/L ±5% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of cadmium reaction method	

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Nitrite Portable Photometers

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Nitrites can be harmful to aquatic organisms even in low concentrations and for this reason, they are closely monitored in aquaculture facilities. In cooling towers, however, an adequate amount of nitrites is necessary to prevent corrosion.

In high concentrations, they can be harmful to the environment and to humans. They are, therefore, normally monitored to verify the quality of water for domestic use, as well as lakes and ponds.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Nitrites are an intermediate product in the nitrogen cycle and are produced by ammonia oxidation with water, or even originate in industrial waste directly. They must not be present in drinking water.

The HI 96707 measures the Nitrogen-Nitrite content in the 0.000 to 0.600 mg/L (ppm) range, in drinking, surface and saline water samples and in domestic and industrial wastes.

The HI 96708 meter measures the nitrite content in water and wastewater in the 0 to 150 mg/L (ppm) range.

Both meters use an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

SPECIFICATIONS	HI 96707 Nitrite, Low Range	HI 96708 Nitrite, High Range
Range	0.000 to 0.600 mg/L (ppm)	0 to 150 mg/L (ppm)
Resolution	0.001 mg/L (ppm)	1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.020 mg/L ±4% of reading	±4 mg/L ±4% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	silicon photocell with narrow band interference filter @ 575 nm
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of an EPA approved method	adaptation of the Ferrous Sulfate method

The reagents are in powder form and are supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96707 and HI 96708 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96707C and HI 96708C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For HI 96707

HI 96707-11 CAL CHECK™ standard cuvettes

HI 93707-01 Powder reagents for 100 tests

HI 93707-03 Powder reagents for 300 tests

For HI 96708

HI 96708-11 CAL CHECK™ standard cuvettes

HI 93708-01 Reagents for 100 tests

HI 93708-03 Reagents for 300 tests

HI 96732

Dissolved Oxygen Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

In aquaculture, dissolved oxygen is arguably the most important parameter of water quality. Most species require a minimum of 3 mg/L (ppm) DO, 8-10 mg/L (ppm) is preferable. Unlike other gases such as nitrogen, oxygen supersaturation doesn't usually result in gas bubble disease ("pop-eye"), so high levels generally aren't an issue.

The HI 96732 measures the content of dissolved oxygen (O₂) in surface, feed, natural and waste waters in the 0.0 to 10.0 mg/L (ppm) range.

HI 96732 uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.



Dissolved oxygen analysis measures the amount of gaseous oxygen (O₂) dissolved in an aqueous solution. Dissolved oxygen is one of the most important parameters in aquatic systems. This gas is an absolute requirement for the metabolism of aerobic organisms and also influences inorganic chemical reactions. Therefore, knowledge of the solubility and dynamics of oxygen distribution is essential to interpreting both biological and chemical processes within water bodies. Oxygen gets into water by diffusion from the surrounding air, by aeration (rapid movement) and as a waste product of photosynthesis. The amount of oxygen (or any gas) that can dissolve in pure water (saturation point) is inversely proportional to the temperature of water; the warmer the water, the less dissolved oxygen.

ORDERING INFORMATION

HI 96732 is supplied with sample cuvettes (2) with caps, 60 mL glass bottle with stopper, 9V battery and instruction manual

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96732-11 CAL CHECK™ standard cuvettes
 HI 93732-01 Reagents for 100 tests
 HI 93732-03 Reagents for 300 tests

SPECIFICATIONS	HI 96732 Oxygen, Dissolved
Range	0.0 to 10.0 mg/L (ppm)
Resolution	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.2 mg/L ±3% of reading
Light Source	light emitting diode
Light Detector	silicon photocell with narrow band interference filter @ 466 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	modified Winkler method

The reagents are in liquid form and are supplied in bottles. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Phosphate Portable Photometers

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Phosphates are present in a number of products that are used by humans everyday. Some examples of the effects of phosphate are enhancing the flavor and tartness of cola drinks, as a buffering agent in controlling pH in antifreeze and delaying darkening of cut potatoes used for french fries.

Phosphates are also extensively used in detergents and cleaning fluids because of their ability to soften water and remove soil deposits.

The largest use of phosphates is in the conversion of the mineral apatite, which is a mixture of calcium phosphate and other calcium compounds that are used in fertilizers. Local laws govern the use of phosphates and the discharge levels into streams.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Phosphates are particularly important for the growth and development of plant roots, and hence are one of the most common fertilizers used in agriculture.

Phosphates are also utilized in detergents and are needed, in small quantities, for heating systems. However, high concentrations of phosphates can cause environmental pollution as they are a primary cause of eutrophication.

For these reasons, it is necessary to closely monitor the phosphate levels present in both municipal and industrial waste water.

The HI 96713 measures phosphate (PO_4^{3-}) content in water, wastewater and seawater in the 0.00 to 2.50 mg/L (ppm) range.

The HI 96717 measures the phosphate (PO_4^{3-}) content in water samples in the 0.0 to 30.0 mg/L (ppm) range.

SPECIFICATIONS	HI 96713 Phosphate LR	HI 96717 Phosphate HR
Range	0.00 to 2.50 mg/L (ppm)	0.0 to 30.0 mg/L (ppm)
Resolution	0.01 mg/L (ppm)	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.04 mg/L ±4% of reading	±1.0 mg/L ±4% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 610 nm	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the ascorbic acid method	Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater

The reagents are in powder and liquid form and are supplied in packets and bottles. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96713 and HI 96717 are supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96713C and HI 96717C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For HI 96713

HI 96713-11 CAL CHECK™ standard cuvettes

HI 93713-01 Reagents for 100 tests

HI 93713-03 Reagents for 300 tests

For HI 96717

HI 96717-11 CAL CHECK™ standard cuvettes

HI 93717-01 Reagents for 100 tests

HI 93717-03 Reagents for 300 tests

HI 96706

Phosphorus Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Phosphorus is found in nature as phosphates. Its concentration in water is monitored because it causes corrosion when present in high levels. It is also an essential parameter for the growth of microorganisms and algae, which are often unwanted in tanks and reserves of water.

Phosphorus is also an essential element for plant growth and for this reason, is needed in large amounts.

The HI 96706 measures the phosphorus (P) content in water samples in the 0.0 to 15.0 mg/L (ppm) range.

HI 96706 uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.



Worldwide demand for fertilizers has contributed to record phosphate production. Phosphates are used in the production of special glasses, such as those used for sodium lamps. Bone-ash, calcium phosphate, is used to create fine china and to produce mono-calcium phosphate, used in baking powder.

Phosphorus is also important in the production of steels, phosphor bronze, and many other products. Trisodium phosphate is important as a cleaning agent, as a water softener, and for preventing boiler scale and corrosion of pipes and boiler tubes.

Phosphorus is also an essential ingredient of all cell protoplasm, nervous tissue, and bones.

ORDERING INFORMATION

HI 96706 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual

CAL CHECK™ standards and testing reagents sold separately

HI 96706C includes photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96706-11 CAL CHECK™ standard cuvettes

HI 93706-01 Reagents for 100 tests

HI 93706-03 Reagents for 300 tests

SPECIFICATIONS	HI 96706 Phosphorus
Range	0.0 to 15.0 mg/L (ppm)
Resolution	0.1 mg/L (ppm)
Accuracy @ 25°C (77°F)	± 0.3 mg/L ±4% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater

The reagents are in powder and liquid form and are supplied in packets and bottles. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Potassium Portable Photometer

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The importance of potassium to plant growth differs somewhat from nitrogen and phosphorus, in that potassium acts as more of a catalyst in plant carbohydrate metabolism. Over 60 plant enzymes need potassium to be activated.

Other important functions of potassium are its ability to help with the regulation of water in plants, its contribution to the formation of ATP molecules, and as a necessary component for nitrogen uptake and protein synthesis.

Plants without adequate potassium use water less efficiently and usually have a lower nitrogen intake and protein synthesis activity. Plants with increased supplies of potassium are able to more quickly assimilate carbon dioxide into sugars during photosynthesis.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Potassium as a chemical element is commonly found in nature. It is present in soil and drinking water and is also an essential element for the growth of plants and animals.

Potassium concentration is important in determining the quality of soil in many greenhouse, agriculture and horticulture applications. Potassium salts are also a common component of fertilizers.

The HI 96750 measures the potassium (K) content in water samples in the 0.0 to 10.0 mg/L (ppm) for low range and 10 to 100 mg/L (ppm) for medium range. The HI 96750 uses the Tetraphenylborate Method. The reaction between potassium and reagents causes turbidity in the sample.

HI 96750 uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

SPECIFICATIONS	HI 96750 Potassium	
	Potassium LR (P1)	Potassium MR (P2)
Range	0.0 to 10.0 mg/L (ppm)	10 to 100 mg/L (ppm)
Resolution	0.1 mg/L (ppm)	1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±1.5 mg/L ±7% of reading	±15 mg/L ±7% of reading
Light Source	light emitting diode	
Light Detector	silicon photocell with narrow band interference filter @ 466 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	Tetraphenylborate method	

The reagents are in powder and liquid form and are supplied in packets and bottles respectively. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96750 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96750C includes photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96750-11 CAL CHECK™ standard cuvettes
- HI 93750-01 Reagents for 100 tests
- HI 93750-03 Reagents for 300 tests

HI 96705 • HI 96770

Silica Portable Photometers

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Silica is found in all natural waters in the dissolved mineral form. Silica is only slightly soluble in water; solubility and therefore the form of silica in water depends on the pH level of the water and on the minerals containing silica in contact with water.

Silica's presence in industrial applications is undesirable since it causes scale. In particular, high pressure turbines are highly effected by this factor.

Heating systems and reverse osmosis plants also require monitoring of silica.

The HI 96705 meter measures the silica (SiO_2) content in water and wastewater in the 0.00 to 2.00 mg/L (ppm) range. HI 96770 measures silica (SiO_2) content from 0 to 200 mg/L.



ORDERING INFORMATION

HI 96705 and HI 96770 are supplied with sample cuvettes (2) with caps, 9V battery and instructions.

CAL CHECK™ standards and testing reagents sold separately

HI 96705C and HI 96770C include photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

For HI 96705

HI 96705-11 CAL CHECK™ standard cuvettes

HI 93705-01 Reagents for 100 tests

HI 93705-03 Reagents for 300 tests

For HI 96770

HI 96770-11 CAL CHECK™ standard cuvettes

HI 96770-01 Reagents for 100 tests

HI 96770-03 Reagents for 300 tests

SPECIFICATIONS	HI 96705 Silica	HI 96770 Silica HR
Range	0.00 to 2.00 mg/L (ppm)	0 to 200 mg/L (as SiO_2)
Resolution	0.01 mg/L (ppm)	1 mg/L
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading	±1 mg/L ±5% of reading
Light Source	tungsten lamp	light emitting diode
Light Detector	silicon photocell with narrow band interference filter @ 610 nm	silicon photocell with narrow band interference filter @ 466 nm
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the ASTM D859 method of heteropoly blue method	adaptation of the USEPA METHOD 370.1 for drinking, surface and saline waters, domestic and industrial wastes and Standard Method 4500- SiO_2 C

The reagents are in powder and liquid form and are supplied in packets and bottles respectively. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Silver Portable Photometer

10

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Seawater contains approximately 2-100 ppt of silver, and the surface concentration may be even lower. River water generally contains approximately 0.3-1 ppb of silver. The phytoplankton concentration is 0.1-1 ppm (dry mass), leading to a 104-105 bio concentration factor in seawater. In oyster tissue, concentrations of approximately 890 ppm (dry mass) were found.

Silver does not react with pure water. It is stable in both water and air. Moreover, it is acid and base resistant, but it corrodes when it comes in contact with sulphur compounds. Dissolved in water silver mainly occurs as Ag^+ (aq), and in seawater as AgCl_2^- (aq).

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Small quantities of silver are bacteriostatic or bactericidal. As a result, it is at times used in disinfection of pools and spas, as well as in water filters.

The presence of silver in water is generally indicative of pollution from mainly film manufacturers, film processors and surface finishers. In fact, silver levels are closely monitored in these sectors since its presence can cause discoloration of the skin, eyes and mucous membranes.

The HI 96737 measures the silver content in water and wastewater in the 0.000 to 1.000 mg/L (ppm) range.

This instrument uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both, the measurement and the calibration (zeroing) cuvettes, are optically identical to provide the same measurement conditions.

SPECIFICATIONS	HI 96737 Silver
Range	0.000 to 1.000 mg/L (ppm)
Resolution	0.001 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.005 mg/L ±10% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 575 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the PAN method

The reagents are in liquid form and are supplied in bottles. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96737 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96737-11 CAL CHECK™ standard cuvettes
- HI 93737-01 Reagents for 50 tests
- HI 93737-03 Reagents for 150 tests

HI 96751

Sulfate Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Sulfate is widely present within natural waters in different concentrations. Sulfate concentration is to be kept within a strict range for drinking water, especially since this value can be high near mine drainage points.

Sulfate is also rigorously tested in the production of beverages such as beer, due to its significant effect upon odor and taste.

The HI 96751 measures the sulfate content in water samples in the 0 to 150 mg/L (ppm) range. Sulfate is precipitated with barium chloride crystals.

The instrument uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has an important role because it is an optical element and thus requires particular attention. It is important that both, the measurement and the calibration (zeroing) cuvettes, are optically identical to provide the same measuring conditions.



Sulfate is added to certain types of boilers to help precipitate calcium and magnesium and to inhibit encrustation. Too much sulfate can be corrosive in high pressure boilers, electric turbines and their heat exchangers. In fact, in these applications, it is important to keep the level below a specific limit. Similar checks of sulfate presence are carried out in water used for different production cycles, including those of semiconductors.

ORDERING INFORMATION

HI 96751 is supplied with sample cuvettes with caps (2), 9V battery and instructions.

CAL CHECK™ standards and testing reagents sold separately

HI 96751C includes photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96751-11 CAL CHECK™ standard cuvettes

HI 93751-01 Reagents for 100 tests

HI 93751-03 Reagents for 300 tests

SPECIFICATIONS	HI 96751 Sulfate
Range	0 to 150 mg/L (ppm)
Resolution	1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±1 mg/L ±5% of reading
Light Source	light emitting diode
Light Detector	silicon photocell with narrow band interference filter @ 466 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the turbidimetric method

The reagent is in powder form and is supplied in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Zinc Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Zinc is normally introduced into drinking water through industrial effluents, especially due to dezincification of brass and deterioration of galvanized iron.

In addition to drinking water, zinc is measured in surface finishing, boilers and cooling towers, water conditioning, effluent waters and many others.

The HI 96731 measures the zinc content in water and wastewater in the 0.00 to 3.00 mg/L (ppm) range.

The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both, the measurement and the calibration (zeroing) cuvettes, are optically identical to provide the same measurement conditions.

Even though zinc is non-toxic to human beings, concentrations above 5 mg/L (ppm) can cause a bitter, astringent taste. This level of zinc can result in a milky, iridescent color in alkaline waters and irritate the human digestive system.

Zinc in low quantities, however, is a beneficial and essential element necessary for body growth. In fact, US drinking water contains an average of 1.33 mg/L (ppm) of zinc.

SPECIFICATIONS	HI 96731 Zinc
Range	0.00 to 3.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 575 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 20th edition, Zincon method

The reagents are in liquid and powder form and are supplied in bottles and in packets. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96731 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96731-11 CAL CHECK™ standard cuvettes
- HI 93731-01 Reagents for 100 tests
- HI 93731-03 Reagents for 300 tests

HI 96101

Bromine, Chlorine, Cyanuric Acid, Iron Iodine and pH Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96101 measures Bromine, Free and Total Chlorine, Cyanuric Acid, Iron, Iodine and pH content in water and wastewater samples. The reagents are in powder and liquid form depending on the parameter and they are supplied in dropper bottles and packets.

The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both the measurement and calibration (zeroing) cuvettes are optically identical to provide the same measuring conditions.



This multiparameter photometer can save time and money. If you need a simple, but professional meter measuring the most important constituents of water, especially in pools and spas, then HI 96101 has been designed for you.

ORDERING INFORMATION

HI 96101 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96101C includes HI 96101 photometer, sample cuvettes (2) with caps, scissors, cuvette cleaning cloth, 9V battery, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96701-11 CAL CHECK™ standard cuvettes
 - HI 93701-01 Reagents for 100* tests
 - HI 96710-11 CAL CHECK™ standard cuvettes
 - HI 93710-01 Reagents for 100* tests
 - HI 96711-11 CAL CHECK™ standard cuvettes
 - HI 93711-01 Reagents for 100* tests
 - HI 96716-11 CAL CHECK™ standard cuvettes
 - HI 93716-01 Reagents for 100* tests
 - HI 96718-11 CAL CHECK™ standard cuvettes
 - HI 93718-01 Reagents for 100* tests
 - HI 96722-11 CAL CHECK™ standard cuvettes
 - HI 93722-01 Reagents for 100* tests
 - HI 96746-11 CAL CHECK™ standard cuvettes
 - HI 93746-01 Reagents for 50 tests
- *Reagents for 300 tests also available

SPECIFICATIONS

HI 96101

Bromine, Chlorine, Cyanuric Acid, Iodine, Iron LR and pH

Range

Bromine: 0.00 to 10.00 mg/L (ppm); **Free Chlorine:** 0.00 to 5.00 mg/L (ppm)
Total Chlorine: 0.00 to 5.00 mg/L (ppm); **Cyanuric Acid:** 0 to 80 mg/L (ppm)
Iodine: 0.0 to 12.5 mg/L (ppm); **Iron LR:** 0.00 to 1.60 mg/L; **pH:** 6.5 to 8.5 pH

Resolution

Bromine: 0.01 mg/L (ppm); **Chlorine:** 0.01 mg/L under 3.50 mg/L; 0.10 mg/L above 3.50 mg/L
Cyanuric Acid: 1 mg/L (ppm); **Iodine:** 0.1 mg/L (ppm)
Iron LR: 0.01 mg/L; **pH:** 0.1 pH

Accuracy @ 25°C (77°F)

Bromine: ±0.08 mg/L ±3% of reading; **Chlorine:** ±0.03 mg/L ±3% of reading;
Cyanuric Acid: ±1 mg/L ±15% of reading; **Iodine:** ±0.1 mg/L ±5% of reading;
Iron LR: ±0.01 mg/L ±8% of reading; **pH:** ±0.1 pH

Light Source

tungsten lamp

Light Detector

Silicon photocell with narrow band interference filter @ 525 nm

Power Supply

9V battery

Auto-off

after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder

Environment

0 to 50°C (32 to 122°F); RH max 95% non-condensing

Dimensions

192 x 104 x 69 mm (7.6 x 4.1 x 2.7")

Weight

360 g (12.7 oz.)

Method

Bromine: adaptation of the EPA, DPD method; **Chlorine:** Adaptation of the USEPA method and Standard Method 4500-Cl G; **Cyanuric Acid:** adaptation of the turbidimetric method; **Iodine:** adaptation of the EPA, DPD method;
Iron LR: adaptation of the TPTZ method; **pH:** Phenol Red method

The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

pH, Free and Total Chlorine & Cyanuric Acid Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Chlorine is the most common water disinfectant used in many swimming pools and spas.

In swimming pools, spas and similar applications, Cyanuric Acid helps to stabilize the breakdown of chlorine, especially in sunlight. Frequent testing of both cyanuric acid and pH will help to minimize chlorine consumption.

Specifically designed for swimming pool and spa applications, the HI 96104 measures pH, Free and Total Chlorine and Cyanuric Acid content.

The HI 96104 meter measures pH, Free and Total Chlorine and Cyanuric Acid content in water and wastewater. The reagents are in powder and liquid form depending on the parameter and they are supplied in dropper bottles and packets.

SPECIFICATIONS	HI 96104 Chlorine, Cyanuric Acid and pH			
	pH (P1)	Cl, Free (P2)	Cl, Total (P3)	Cyanuric Acid (P4)
Range	6.5 to 8.5 pH	0.00 to 5.00 mg/L (ppm)	0.00 to 5.00 mg/L (ppm)	0 to 80 mg/L (ppm)
Resolution	0.1 pH	0.01 mg/L (ppm)	0.01 mg/L (ppm)	1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.1 pH	±0.03 mg/L (ppm) ±3% of reading	±0.03 mg/L (ppm) ±3% of reading	±1 mg/L (ppm) ±15% of reading
Light Source	tungsten lamp			
Light Detector	silicon photocell with narrow band interference filter @ 525 nm			
Power Supply	9V battery			
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder			
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing			
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")			
Weight	360 g (12.7 oz.)			
Method	phenol red method	adaptation of the EPA recommended DPD method 330.5		adaptation of the Turbidimetric method

The reagents are in powder and liquid form and supplied in packets or bottles. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96104 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96104C includes HI 96104 photometer, sample cuvettes (2) with caps, scissors, cuvette cleaning cloth, 9V battery, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96701-11 CAL CHECK™ standard cuvettes
- HI 93701-01 Reagents for 100 tests
- HI 93701-03 Reagents for 300 tests
- HI 96710-11 CAL CHECK™ standard cuvettes
- HI 93710-01 Reagents for 100 tests
- HI 93710-03 Reagents for 300 tests
- HI 96711-11 CAL CHECK™ standard cuvettes
- HI 93711-01 Reagents for 100 tests
- HI 93711-03 Reagents for 300 tests
- HI 96722-11 CAL CHECK™ standard cuvettes
- HI 93722-01 Reagents for 100 tests
- HI 93722-03 Reagents for 300 tests

HI 96710

Free and Total Chlorine and pH Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

HANNA has developed the HI 96710 to measure pH, free chlorine and total chlorine – three critical parameters to ensure good water quality.



pH	Molecular Chlorine	Hypochlorous Acid	Hypochlorite Ion
effect of pH on the hypochlorous acid present in water			
4	0.5	99.5	0
5	0	99.5	0.5
6	0	96.5	3.5
7	0	72.5	27.5
8	0	21.5	78.5
9	0	1.0	99.0
10	0	0.1	99.9

ORDERING INFORMATION

HI 96710 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96710C includes HI 96710 photometer, sample cuvettes (2) with caps, scissors, cuvette cleaning cloth, 9V battery, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 96701-11	CAL CHECK™ standard cuvettes
HI 93701-01	Powder reagents for 100 tests
HI 93701-03	Powder reagents for 300 tests
HI 96710-11	CAL CHECK™ standard cuvettes
HI 93710-01	Reagents for 100 tests
HI 93710-03	Reagents for 300 tests
HI 96711-11	CAL CHECK™ standard cuvettes
HI 93711-01	Reagents for 100 tests
HI 93711-03	Reagents for 300 tests

SPECIFICATIONS	HI 96710 Free and Total Chlorine and pH		
	pH (P1)	Cl, Free (P2)	Cl, Total (P3)
Range	6.5 to 8.5 pH	0.00 to 5.00 mg/L (ppm)	0.00 to 5.00 mg/L (ppm)
Resolution	0.1 pH	0.01 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.1 pH	±0.03 mg/L (ppm) ±3% of reading	±0.03 mg/L (ppm) ±3% of reading
Light Source	tungsten lamp		
Light Detector	silicon photocell with narrow band interference filter @ 525 nm		
Power Supply	9V battery		
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder		
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing		
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")		
Weight	360 g (12.7 oz.)		
Method	phenol red	adaptation of the EPA recommended DPD method 330.5	

The reagent is in powder and liquid form and is supplied in packets and bottles respectively. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Free and Total Chlorine Portable Photometer

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This photometer has been designed to be used with liquid reagents. Free and total chlorine parameters can be switched between depending on procedure and reagents.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96724 measures the free and total chlorine content in water samples in the 0.00 to 5.00 mg/L (ppm) range. The method is an adaptation of the USEPA Method 330.5 for wastewater, and Standard Method 4500-CL G for drinking water.

The HI 96724 incorporates an advanced optical system based on a special tungsten lamp and a narrow band interference filter that allows the most accurate and repeatable readings. The instrument is factory calibrated and the electronic and optical design minimizes the need of frequent calibration.

The meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both the measurement and calibration (zeroing) cuvettes, are optically identical to provide the same measuring conditions.

SPECIFICATIONS	HI 96724 Free and Total Chlorine
Range	0.00 to 5.00 mg/L (ppm)
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L (ppm); 0.10 mg/L above 3.50 mg/L
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading
Light Source	tungsten lamp
Light Detector	silicon photocell with narrow band interference filter @ 525 nm
Power Supply	9V battery
Auto-off	after 10 minutes of non-use in measurement mode; after 1 hour of non-use in calibration mode; with last reading reminder.
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)
Method	adaptation of the USEPA method 330.5 and Standard Method 4500-CL G

The reagents are in liquid form and are supplied in bottles. The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96724 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96724C includes HI 96724 photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 93701-F** Reagents for 300 tests
- HI 93701-T** Reagents for 300 tests; free and 100 tests total chlorine
- HI 93711-D3** DPD3 reagent for 200 tests
- HI 96724-11** CAL CHECK™ Standard Cuvettes

HI 96725

Chlorine, Cyanuric Acid and pH Portable Photometer for Legionella Protection

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Legionella species is the agent that causes human Legionnaires' disease as well as the lesser form, Pontiac Fever. Transmission is facilitated by the inhalation of mist droplets containing the Legionella bacteria.

Common sources of Legionella include cooling towers used in industrial cooling water systems as well as in large central air conditioning systems, domestic hot water systems, fountains, and similar disseminators that draw from a public water supply. Natural sources include freshwater ponds and creeks.

Since Legionella is especially harmful to people with weakened immune systems, it should be actively checked for in the water systems of hospitals and nursing homes.

The HI 96725 measures 4 parameters that are crucial in monitoring for preventive maintenance or disinfection.



The microbial and chemical quality of the water used for filling pools and hot tubs will affect the efficacy of disinfection. Ideally, a detectable residual biocide level should be maintained at all times, to prevent colonization of the system by microorganisms living in biofilms. In unusual situations where there is a maintenance fault, the pH could drop to levels at which oxidizing biocides will be disassociated, leading to increased levels of chlorine, which can cause eye and skin irritation. At high pH levels, the chlorine will remain bound and be less effective.

Various additives may also be used to help maintain the water balance; for example, cyanuric acid helps to stabilize chlorine, particularly in outdoor pools, by preventing its breakdown by UV light and sunlight. Bicarbonates or carbonates may be added to act as a buffer against rapid changes in pH caused by high bather loads, pollutants and chemicals.

ORDERING INFORMATION

HI 96725 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

HI 96725C includes HI 96725 photometer, sample cuvettes (2) with caps, scissors, cuvette cleaning cloth, 9V battery, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96701-11 CAL CHECK™ standard cuvettes
- HI 93701-01 Reagents for 100 tests
- HI 93701-03 Reagents for 300 tests
- HI 96710-11 CAL CHECK™ standard cuvettes
- HI 93710-01 Reagents for 100 tests
- HI 93710-03 Reagents for 300 tests
- HI 96711-11 CAL CHECK™ standard cuvettes
- HI 93711-01 Reagents for 100 tests
- HI 93711-03 Reagents for 300 tests
- HI 96722-11 CAL CHECK™ standard cuvettes
- HI 93722-01 Reagents for 100 tests
- HI 93722-03 Reagents for 300 tests

SPECIFICATIONS	HI 96725 Chlorine, Cyanuric Acid and pH			
	Cl, Free (P1)	Cl, Total (P2)	Cyanuric Acid (P3)	pH (P4)
Range	0.00 to 5.00 mg/L	0.00 to 5.00 mg/L (ppm)	0 to 80 mg/L (ppm)	6.5 to 8.5 pH
Resolution	0.01 mg/L (ppm)	0.01 mg/L (ppm)	1 mg/L (ppm)	0.1 pH
Accuracy @ 25°C (77°F)	±0.03 mg/L (ppm) ±3% of reading	±0.03 mg/L (ppm) ±3% of reading	±1 mg/L (ppm) ±15% of reading	±0.1 pH
Light Source	tungsten lamp			
Light Detector	silicon photocell with narrow band interference filter @ 525 nm			
Power Supply	9V battery			
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder			
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing			
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")			
Weight	360 g (12.7 oz.)			
Method	adaptation of the EPA recommended DPD method 330.5		adaptation of the Turbidimetric method	Phenol Red method

The reagents are in powder and liquid form and supplied in packets or bottles. The amount of reagent is precisely dosed to ensure the maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

Free and Total Chlorine, High Range Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

HI 96734 permits free and total chlorine analysis to monitor overchlorination through chloramine destruction.

The HI 96734 photometer uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both the measurement and calibration (zeroing) cuvettes, are optically identical to provide the same measuring conditions.

Bleach/chlorine is the most cost effective disinfectant and is used extensively in dialysis clinics. Its use varies from light duty application in surface sanitation to heavy duty disinfection of medical devices or removal of microorganism infections in piping systems. The advantage of chlorine over peroxide type disinfectants is that chlorine not only is a strong oxidant, it also is capable of breaking tough chemical bounds found in cell walls or biofilms. Correct and effective use of bleach/chlorine requires understanding of the chemical nature of the disinfectant.

SPECIFICATIONS	HI 96734 Free and Total Chlorine, High Range	
	Chlorine, Free HR (P1)	Chlorine, Total HR (P2)
Range	0.00 to 10.00 mg/L	0.00 to 10.00 mg/L
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L; 0.10 mg/L above mg/L	
Accuracy @ 25°C (77°F)	±0.03 mg/L ±3% of reading (excluding dilution error)	
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the USEPA method 330.5 and Standard method 4500-CL G	

The reagents are in powder and liquid form and are supplied in packets and bottles. The amount of reagent is precisely dosed to ensure the maximum repeatability

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96734 is supplied with sample cuvettes (2) with caps, 9V battery and instructions.

CAL CHECK™ standards and testing reagents sold separately

HI 96734C includes HI 96734 photometer, sample cuvettes (2) with caps, 9V battery, scissors, cuvette cleaning cloth, instrument quality certificate, instruction manual and rigid carrying case.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 93734-01 Reagents for 100 Tests

HI 93734-03 Reagents for 300 Tests

HI 96734-11 CAL CHECK™ standard cuvettes

HI 96736

Total Hardness and pH Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

HI 96736 is a multiparameter portable photometer that measures total hardness and pH.

The HI 96736 meter uses an exclusive positive-locking system to ensure that the cuvette is in the same place every time it is placed into the measurement cell.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both the measurement and calibration (zeroing) cuvettes, are optically identical to provide the same measuring conditions.



ORDERING INFORMATION

HI 96736 is supplied with sample cuvettes with caps (2), 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96710-11 CAL CHECK™ standard cuvettes
- HI 93710-01 Reagents for 100 tests
- HI 93710-03 Reagents for 300 tests
- HI 96719-11 CAL CHECK™ standard cuvettes
- HI 93719-01 Reagents for 100 tests
- HI 93719-03 Reagents for 300 tests

SPECIFICATIONS	HI 96736 Total Hardness and pH	
	Total Hardness (P1)	pH (P2)
Range	0.00 to 4.70 mg/L (ppm)	6.5 to 8.5 pH
Resolution	0.01 mg/L (ppm)	0.1 pH
Accuracy @ 25°C (77°F)	±0.11 mg/L ±5% of reading	±0.1 pH
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th Edition, colorimetric method	phenol red method

For a complete list of Reagents, see Reagents Section 18.

Total Hardness and Iron, Low Range Portable Photometer

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In domestic water, **iron** can alter the taste and make it unpleasant to drink. It can also stain laundry, damage kitchenwares and favor the growth of certain bacteria. However, low levels of iron are critical in beverage production.

Hardness is a consequence of the type of rock layers which the water passes through and of its permanence in the water bearing stratum.

Hardness can cause pipe rusting in water heating and cooling systems, reverse osmosis systems and demineralization plants. It can also increase the consumption of soaps and detergents in industrial washing machines or laundries.

- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

In domestic water, iron can alter the taste and make it unpleasant to drink. It can also stain laundry, damage kitchenwares and favor the growth of certain bacteria. However, low levels of iron are critical in beverage production.

Hardness is a consequence of the type of rock layers which the water passes through and of its permanence in the water bearing stratum.

Hardness can cause pipe rusting in water heating and cooling systems, reverse osmosis and demineralization plants. It can also increase the consumption of soaps and detergents in industrial washing machines or laundries.

HI 96741 can provide critical measurements of low range iron and total hardness (magnesium and calcium).

The iron concentration in water needs to be monitored since it can become harmful above certain levels.

Hardness, on the other hand, is indicative of the presence of calcium and magnesium in water. By passing through various layers of soil and rocks, rain water dissolves some of the mineral substances.

With the portable HI 96741 you can monitor both iron and hardness levels.

SPECIFICATIONS	HI 96741 Total Hardness and Iron, Low Range	
	Total Hardness (P1)	Iron, Low Range (P2)
Range	0.00 to 4.70 mg/L (ppm)	0 to 1.60 mg/L (ppm)
Resolution	0.01 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.11 mg/L ±5% of reading	±0.01 mg/L ±8% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th ed.	adaptation of TPTZ method

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96741 is supplied with sample cuvettes with caps (2), 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96719-11 CAL CHECK™ standard cuvettes
- HI 93719-01 Reagents for 100 tests
- HI 93719-03 Reagents for 300 tests
- HI 96746-11 CAL CHECK™ standard cuvettes
- HI 93746-01 Reagents for 50 tests
- HI 93746-03 Reagents for 150 tests

HI 96742

Iron, Low Range and Manganese Low Range Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Neither iron nor manganese are considered dangerous, but high concentrations of these metals in water can create a bittersweet or astringent taste.

The presence of iron in supplied water is undesirable due to the staining effect on laundry and porcelain.

Manganese, in high concentrations, can produce corrosion and scaling in pipes, which is a serious industrial concern.

The solution for these applications is the HANNA HI 96742, a handheld photometer to measure low range iron and manganese.



ORDERING INFORMATION

HI 96742 are supplied with sample cuvettes with caps (2), 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 93746-01 Reagents for 100 Tests
 HI 93746-03 Reagents for 300 Tests
 HI 93748-01 Reagents for 100 Tests
 HI 93748-03 Reagents for 300 Tests
 HI 96746-11 CAL CHECK™ standard cuvettes
 HI 96748-11 CAL CHECK™ standard cuvettes

SPECIFICATIONS	HI 96742 Iron, Low Range and Manganese	
	Iron, Low Range (P1)	Manganese, Low Range (P2)
Range	0 to 1.60 mg/L (ppm)	0 to 300 µg/L
Resolution	0.01 mg/L (ppm)	1 µg/L
Accuracy @ 25°C (77°F)	±0.01 mg/L ±8% of reading	±2 µg/L ±3% of reading
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder.	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of TPTZ method	adaptation of the 1-(2-pyridylazo)-2-naphthol PAN method

For a complete list of Reagents, see Reagents Section 18.

Iron LR and pH Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

pH is normally measured using litmus paper or a pH meter with an electrode. Litmus paper provides poor results and also poses a serious problem to those who find it difficult to distinguish certain colors. Conventional pH meters, however, provide very accurate results but require electrode maintenance and do not measure iron, a prime cause of unpleasant taste in drinking water and kitchenware and laundry damage.

The best choice for pH and Iron measurement is the HI 96743. Measurements with the HI 96743 can be performed in a few short steps and are impervious to temperature variations, a common source of error with conventional pH meters.

The HI 96743 offers unparalleled accuracy at a cost-per-test that is comparable with chemical test kits and litmus paper.

SPECIFICATIONS	HI 96743 Iron, Low Range and pH	
	Iron, Low Range (P1)	pH (P2)
Range	0 to 1.60 mg/L (ppm)	6.5 to 8.5 pH
Resolution	0.01 mg/L (ppm)	0.1 pH
Accuracy @ 25°C (77°F)	±0.01 mg/L ±8% of reading	±0.1 pH
Light Source	tungsten lamp	
Light Detector	silicon photocell with narrow band interference filter @ 525 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of TPTZ method	phenol red method

ORDERING INFORMATION

HI 96743 is supplied with sample cuvettes with caps (2), 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96710-11 CAL CHECK™ standard cuvettes
- HI 93710-01 Reagents for 100 tests
- HI 93710-03 Reagents for 300 tests
- HI 96746-11 CAL CHECK™ standard cuvettes
- HI 93746-01 Reagents for 50 tests
- HI 93746-03 Reagents for 150 tests

For a complete list of Reagents, see Reagents Section 18.

HI 96744

Total Hardness, Iron LR and pH Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Three important parameters measured with just one meter! The easy-to-use HI 96744 can replace several meters or test kits to practically perform the same tests with better accuracy.

At the touch of a button, users can zero the sample. This means that prior to each measurement and literally in a few seconds, the meter is calibrated, ensuring an accurate end result. The unit is powered by a common and inexpensive 9V battery that can provide up to 40 hours of battery life. A built-in automatic shut-off will turn the meter off after 10 minutes.

The meter housing is made of rugged ABS plastic and the keyboard is splash proof. The unit weighs less than 300 grams so that it can easily be carried to the remotest sites.


www.easeongear.com

ORDERING INFORMATION

HI 96744 are supplied with sample cuvettes with caps (2), 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96710-11 CAL CHECK™ standard cuvettes
- HI 93710-01 Reagents for 100 tests
- HI 93710-03 Reagents for 300 tests
- HI 96719-11 CAL CHECK™ standard cuvettes
- HI 93719-01 Reagents for 100 tests
- HI 93719-03 Reagents for 300 tests
- HI 96746-11 CAL CHECK™ standard cuvettes
- HI 93746-01 Reagents for 50 tests
- HI 93746-03 Reagents for 150 tests

SPECIFICATIONS	HI 96744 Total Hardness, Iron LR and pH		
	pH (P1)	Total Hardness (P2)	Iron, Low Range (P3)
Range	6.5 to 8.5 pH	0.00 to 4.70 mg/L (ppm)	0 to 1.60 mg/L (ppm)
Resolution	0.1 pH	0.01 mg/L (ppm)	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.1 pH	±0.11 mg/L ±5% of reading	±0.01 mg/L ±8% of reading
Light Source	tungsten lamp		
Light Detector	silicon photocell with narrow band interference filter @ 525 nm		
Power Supply	9V battery		
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder		
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing		
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")		
Weight	360 g (12.7 oz.)		
Method	phenol red method	adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th Edition, colorimetric method	adaptation of TPTZ method

For a complete list of Reagents, see Reagents Section 18.

Chlorine, Total Hardness, Iron LR and pH Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

Chlorine and pH are two of the most closely monitored parameters in water quality tests. Hardness is also an important parameter, attentively regulated to reduce waste or ensure proper functioning of equipment. Iron can cause an unpleasant taste or stain kitchenware or laundry.

The HI 96745 is a powerful instrument to keep all these parameters under control. The reagents are in liquid or powder form and are supplied in bottles or in packets.

The cuvette has a very important role because it is an optical element and thus requires particular attention. It is important that both the measurement and calibration (zeroing) cuvettes, are optically identical to provide the same measuring conditions.

SPECIFICATIONS	HI 96745 Chlorine, Total Hardness, Iron Low Range and pH			
	pH (P1)	Cl, Free (P2) Cl, Total (P3)	Total Hardness (P4)	Iron, Low Range (P5)
Range	6.5 to 8.5 pH	0.00 to 5.00 mg/L	0.00 to 4.70 mg/L	0 to 1.60 mg/L (ppm)
Resolution	0.1 pH	0.01 mg/L under 3.50 mg/L; 0.10 mg/L above 3.50 mg/L	0.01 mg/L	0.01 mg/L (ppm)
Accuracy @ 25°C (77°F)	±0.1 pH	±0.03 mg/L ±3% of reading	±0.11 mg/L ±5% of reading	±0.01 mg/L ±8% of reading
Light Source	tungsten lamp			
Light Detector	silicon photocell with narrow band interference filter @ 525 nm			
Power Supply	9V battery			
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder.			
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing			
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")			
Weight	360 g (12.7 oz.)			
Method	Phenol Red	Adaptation of the USEPA method and Standard Method 4500-Cl G	adaptation of the Standard Methods for the examination of Water and Wastewater, 18th ed., colorimetric method	adaptation of the TPTZ method

The amount of reagent is precisely dosed to ensure maximum repeatability.

For a complete list of Reagents, see Reagents Section 18.

ORDERING INFORMATION

HI 96745 is supplied with sample cuvettes (2) with caps, battery and instructions.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

- HI 96701-11 CAL CHECK™ standard cuvettes
- HI 93701-01 Reagents for 100 tests
- HI 93701-03 Reagents for 300 tests
- HI 96710-11 CAL CHECK™ standard cuvettes
- HI 93710-01 Reagents for 100 tests
- HI 93710-03 Reagents for 300 tests
- HI 96711-11 CAL CHECK™ standard cuvettes
- HI 93711-01 Reagents for 100 tests
- HI 93711-03 Reagents for 300 tests
- HI 93719-01 Reagents for 100 tests
- HI 93719-03 Reagents for 300 tests
- HI 96746-11 CAL CHECK™ standard cuvettes
- HI 93746-01 Reagents for 50 tests
- HI 93746-03 Reagents for 150 tests

HI 96752

Calcium and Magnesium Portable Photometer

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- CAL CHECK™
- User calibration
- Certified calibration and verification standards
- BEPS (Battery Error Prevention System)
- TIMER function
- Auto shut-off
- GLP Features

The HI 96752 measures two important parameters in agricultural and hydroponic applications.

HI 96752 measures calcium concentrations from 0 to 400 mg/L and magnesium from 0 to 150 mg/L and the values are displayed directly on the large LCD to eliminate the need for conversion tables.

This handy and portable meter with a low cost-per-test is an ideal hi-tech alternative to chemical test kits.

Accurate and cost-saving, this two in one portable photometer is factory calibrated to measure only calcium and magnesium, to provide an instrument that is easy to use in the lab or on the field.



ORDERING INFORMATION

HI 96752 is supplied with sample cuvettes with caps (2), 9V battery and instruction manual.

CAL CHECK™ standards and testing reagents sold separately

REAGENTS AND STANDARDS

HI 93752-01 Reagents for 100 Tests

HI 93752-03 Reagents for 300 Tests

HI 96752-11 CAL CHECK™ standard cuvettes

HI 96754-11 CAL CHECK™ standard cuvettes

SPECIFICATIONS	HI 96752 Calcium and Magnesium	
	Calcium (P1)	Magnesium (P2)
Range	0 to 400 mg/L (ppm)	0 to 150 mg/L (ppm)
Resolution	1 mg/L (ppm)	1 mg/L (ppm)
Accuracy @ 25°C (77°F)	±10 mg/L ±5% of reading	±3 mg/L ±3% of reading
Light Source	light emitting diode	
Light Detector	silicon photocell with narrow band interference filter @ 466 nm	
Power Supply	9V battery	
Auto-off	after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.)	
Method	adaptation of Oxalate method	adaptation of the Calmagite method

For a complete list of Reagents, see Reagents Section 18.

Blood Plasma Analyzer

10

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HI 95765 performs analysis of centrifuged animal blood plasma coming from abattoirs for quality evaluation.

Quality is valued with sample absorbance and checked by measuring its color, expressed in Quality Units.

When blood cells are damaged, hemoglobin is present in plasma and results in a high reading.

Therefore, the lower the reading in Quality Units (low color), the higher the blood plasma quality. This special instrument reads blood plasma quality from 0 to 10 units.

Designed to be practical, HI 95765 is equipped with a microprocessor system that checks the readings before displaying the correct value.

PHOTOMETERS



SPECIFICATIONS	HI 95765 BLOOD PLASMA
Range	0.0 to 10.0 units
Resolution	0.1 unit
Precision	±0.2 to 5.0 unit
Light Source	light emitting diode
Light Detector	silicon photocell with narrow band interference filter @ 555 nm
Power Supply	9V battery
Auto-off	after ten minutes of non-use in measurement mode
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	180 x 83 x 46 mm (7.1x 3.3 x 1.8")
Weight	290 g (10 oz.)
Method	colorimetric

ORDERING INFORMATION

HI 95765 is supplied with a hard carrying case, protective cap, battery and instructions.

Standard Reagents

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TEST	REAGENT KIT	NO. OF TESTS
Alkalinity	HI 93755-01	100
	HI 93755-03	300
Aluminum	HI 93712-01	100
	HI 93712-03	300
Ammonia HR	HI 93733-01	100
	HI 93733-03	300
Ammonia MR	HI 93715-0	100
	HI 93715-03	300
Ammonia LR	HI 93700-01	100
	HI 93700-03	300
Bromine	HI 93716-01	100
	HI 93716-03	300
Calcium	HI 937521-01	100
	HI 937521-03	300
Calcium and Magnesium	HI 93752-01	100
	HI 93752-03	300
Chloride	HI 93753-01	100
	HI 93753-03	300
Chlorine Dioxide	HI 93738-01	100
	HI 93738-03	300
Chlorine UHR	HI 95771-01	100
	HI 95771-03	300
Chlorine, Free	HI 93701-01	100
	HI 93701-03	300
	HI 93701-F (liquid)	300
Chlorine, Free and Total HR	HI 93734-01	100
	HI 93734-03	300
Chlorine, Free ULR	HI 95762-01	100
	HI 95762-03	300
Chlorine, Total	HI 93711-01	100
	HI 93711-03	300
	HI 93701-T (liquid)	300
Chlorine, Total ULR	HI 95761-01	100
	HI 95761-03	300
Chromium VI HR	HI 93723-01	100
	HI 93723-03	300
Chromium VI LR	HI 93749-01	100
	HI 93749-03	300
Copper HR	HI 93702-01	100
	HI 93702-03	300
	total HI 93702T-01	100
	total HI 93702T-03	300
Copper LR	HI 95747-01	100
	HI 95747-03	300
Cyanide	HI 93714-01	100
	HI 93714-03	300
Cyanuric Acid	HI 93722-01	100
	HI 93722-03	300
Detergents, Anionic	HI 95769-01	40
Fluoride HR	HI 93739-01	100
	HI 93739-03	300
Fluoride LR	HI 93729-01	100
	HI 93729-03	300
Glycine Powder	HI 93703-52-2	100
Hardness (Calcium)	HI 93720-01	100
	HI 93720-03	300

TEST	REAGENT KIT	NO. OF TESTS
Hardness (Magnesium) and Total Hardness	HI 93719-01	100
	HI 93719-03	300
Hardness, Total LR	HI 93735-00	100
Hardness, Total MR	HI 93735-01	100
Hardness, Total HR	HI 93735-02	100
Hardness, Total LR+MR+HR	HI 93735-0	100
Hydrazine	HI 93704-01	100
	HI 93704-03	300
Iodine	HI 93718-01	100
	HI 93718-03	300
Iron HR	HI 93721-01	100
	HI 93721-03	300
Iron LR	HI 93746-01	50
	HI 93746-03	150
Manganese HR	HI 93709-01	100
	HI 93709-03	300
Manganese LR	HI 93748-01	50
	HI 93748-03	150
Magnesium	HI 937520-01	100
	HI 937520-03	300
Molybdenum	HI 93730-01	100
	HI 93730-03	300
Nickel HR	HI 93726-01	100
	HI 93726-03	300
Nickel LR	HI 93740-01	50
	HI 93740-03	150
Nitrate	HI 93728-01	100
	HI 93728-03	300
Nitrite HR	HI 93708-01	100
	HI 93708-03	300
Nitrite LR	HI 93707-01	100
	HI 93707-03	300
Oxygen, Dissolved (D.O.)	HI 93732-01	100
	HI 93732-03	300
Ozone	HI 93757-01	100
	HI 93757-03	300
pH	HI 93710-01	100
	HI 93710-03	300
Phosphate HR	HI 93717-01	100
	HI 93717-03	300
Phosphate LR	HI 93713-01	100
	HI 93713-03	300
Phosphorus	HI 93706-01	100
	HI 93706-03	300
Potassium	HI 93750-01	100
	HI 93750-03	300
Silica LR	HI 93705-01	100
	HI 93705-03	300
Silica HR	HI 96770-01	100
	HI 96701-03	300
Silver	HI 93737-01	50
	HI 93737-03	150
Sulfate	HI 93751-01	100
	HI 93751-03	300
Zinc	HI 93731-01	100
	HI 93731-03	300

CAL CHECK™ Standard Reagents

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Single Parameter

INSTRUMENT	CAL CHECK™ STANDARDS SET	PARAMETER
HI 96700	HI 96700-11	Ammonia
HI 96701	HI 96701-11	Free Chlorine
HI 96702	HI 96702-11	Copper
HI 96704	HI 96704-11	Hydrazine
HI 96705	HI 96705-11	Silica
HI 96706	HI 96706-11	Phosphorus
HI 96707	HI 96707-11	Nitrite
HI 96708	HI 96708-11	Nitrite
HI 96709	HI 96709-11	Manganese
HI 96712	HI 96712-11	Aluminum
HI 96713	HI 96713-11	Phosphate
HI 96714	HI 96714-11	Cyanide
HI 96715	HI 96715-11	Ammonia
HI 96716	HI 96716-11	Bromine
HI 96717	HI 96717-11	Phosphate
HI 96718	HI 96718-11	Iodine
HI 96719	HI 96719-11	Hardness, Magnesium
HI 96720	HI 96720-11	Hardness, Calcium
HI 96721	HI 96721-11	Iron
HI 96722	HI 96722-11	Cyanuric Acid
HI 96723	HI 96723-11	Chromium VI
HI 96724	HI 96724-11	Free/Total Chlorine
HI 96726	HI 96726-11	Nickel
HI 96727	HI 96727-11	Color of Water
HI 96728	HI 96728-11	Nitrate
HI 96729	HI 96729-11	Fluoride
HI 96730	HI 96730-11	Molybdenum
HI 96731	HI 96731-11	Zinc
HI 96732	HI 96732-11	Dissolved Oxygen
HI 96733	HI 96733-11	Ammonia
HI 96737	HI 96737-11	Silver
HI 96738	HI 96738-11	Chlorine Dioxide
HI 96739	HI 96739-11	Fluoride
HI 96740	HI 96740-11	Nickel
HI 96746	HI 96746-11	Iron
HI 96747	HI 96747-11	Copper
HI 98748	HI 96748-11	Manganese
HI 96749	HI 96749-11	Chromium VI
HI 96750	HI 96750-11	Potassium
HI 96751	HI 96751-11	Sulfate
HI 96753	HI 96753-11	Chloride
HI 96761	HI 96761-11	Total Chlorine
HI 96762	HI 96762-11	Trace Free Chlorine
HI 96769	HI 96769-11	Anionic Detergents
HI 96770	HI 96770-11	Silica
HI 96771	HI 96771-11	Ultra High Range Free Chlorine
HI 96786	HI 96786-11	Nitrate

INSTRUMENT	CAL CHECK™ STANDARDS SET	PARAMETER
HI 96101	HI 96716-11 HI 96701-11 HI 96711-11 HI 96722-11 HI 96718-11 HI 96746-11 HI 96710-11	Bromine Free Chlorine Total Chlorine Cyanuric Acid Iodine Iron pH
HI 96104	HI 96710-11 HI 96701-11 HI 96711-11 HI 96722-11	pH Free Chlorine Total Chlorine Cyanuric Acid
HI 96710	HI 96701-11 HI 96711-11 HI 96710-11	Free Chlorine Total Chlorine pH
HI 96711	HI 96701-11 HI 96711-11	Free Chlorine Total Chlorine
HI 96725	HI 96701-11 HI 96711-11 HI 96722-11 HI 96710-11	Free Chlorine Total Chlorine Cyanuric Acid pH
HI 96734	HI 96734-11	Free Chlorine Total Chlorine
HI 96735	HI 96735-11	Hardness
HI 96736	HI 96719-11 HI 96710-11	Total Hardness pH
HI 96741	HI 96719-11 HI 96746-11	Total Hardness Iron
HI 96742	HI 96746-11 HI 96748-11	Iron Manganese
HI 96743	HI 96746-11 HI 96710-11	Iron pH
HI 96744	HI 96710-11 HI 96719-11 HI 96746-11	pH Ca Hardness Mg Hardness Iron
HI 96745	HI 96701-11 HI 96711-11 HI 96719-11 HI 96746-11 HI 96710-11	Free Chlorine Total Chlorine Mg, Hardness Iron pH
HI 96752	HI 96752-11 HI 96754-11	Calcium Magnesium