

# 96 Series **Photometers** with **CAL CHECK™**



**ISO 9001:2000**  
**CERTIFIED**

**HANNA®**  
**instruments**  
With Great Products, Come Great Results™

# 96 Series Photometers

with **CAL CHECK™**

- Large, dual-level LCD
- Waterproof
- Accuracy verification
- User calibration
- Certified calibration & verification standards
- EPA compliant
- Custom ranges to fit all applications
- Supplied as a complete kit
- Long battery life

**READ/TIMER** function counts down to appropriate time interval before a reading is displayed. This feature ensures consistency in measurements across multiple users.

**HANNA**'s new line of single parameter photometers includes instruments to measure ammonia, chlorine at several ranges, copper, anionic detergents, fluoride, iron, nitrite, phosphate and phosphorus. This series features a large dual-level LCD, an advanced optical system and **HANNA**'s exclusive CAL CHECK™ validation function. The advanced optical system is based on a special tungsten lamp (model HI 96715 features an LED) 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 if necessary. All instruments are factory calibrated and the electronic and optical design minimizes the need for frequent calibration.

Ideal for field applications, these meters are waterproof and the lamp and filter measuring system is protected from dust or dirt by a transparent cup. Display codes aid the user in routine operations and include a low battery warning. An auto shut-off feature turns the instruments off after 10 minutes of non-use.

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

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



# CAL CHECK

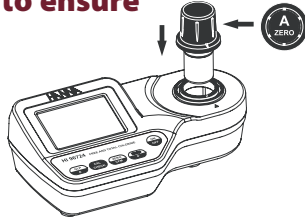
## Peace of mind.

When performing measurements you need to know that the instrument you are using is right on. With HANNA's exclusive CAL CHECK™ feature you can now rest assured. Simply insert the factory calibrated standard of a known concentration and verify that your instrument is accurate.

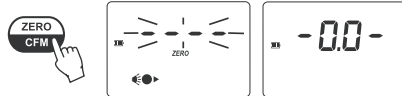
### CAL CHECK™ Validation\*

#### 2-step validation procedure to ensure proper calibration.

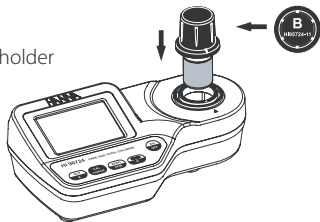
Place the CAL CHECK™ Standard A into the cuvet holder and press ZERO/CFM. The lamp, cuvet and detector icons will appear on the display followed by "-0.0-". The meter is now zeroed and ready for validation.



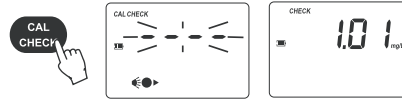
#### Zero the meter prior to validation...



Place the CAL CHECK™ standard B into the cuvet holder and press CAL CHECK™. The lamp, cuvet 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.



#### ... and compare accuracy against a known standard.



The reading should be within specifications as reported in the CAL CHECK™ Standard Certificate. If the value is found out of the specifications, please check that the cuvetts are free of fingerprints, oil or dirt and repeat validation. If results are still found out of specifications, then recalibrate the instrument.

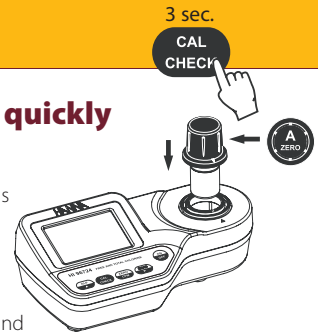
\* HI 96724 is shown as an example for validation/calibration.

\*\* Each CAL CHECK™ cuvet is clearly labeled to its respective measurement. Please read the full instruction manual before validation/calibration.

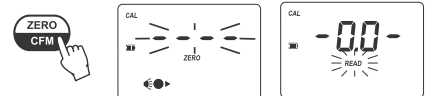
### CAL CHECK™ Calibration\*

#### Calibrate your instrument quickly and easily.

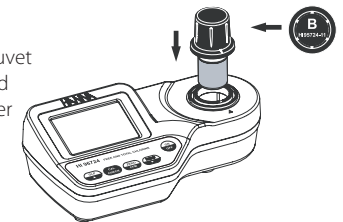
Press and hold CAL CHECK™ for three seconds to enter calibration mode. Place the CAL CHECK™ Standard A into the cuvet holder and press ZERO/CFM. The lamp, cuvet and detector icons will appear on the display followed by "-0.0-". The meter is now zeroed and ready for calibration.



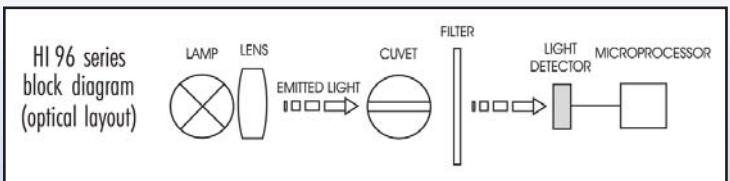
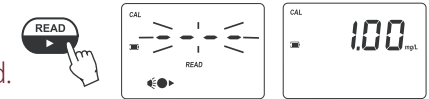
#### Zero the meter prior to calibration...



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



#### ... and calibrate to a known standard.



### Calibration Date on Display



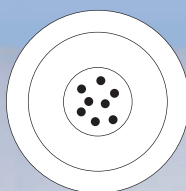
The HI 96 series of photometers displays the last time calibration was performed so you may schedule routine calibrations—ideal for ISO and Good Laboratory Practice environments.

### Accuracy and Precision Defined

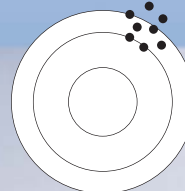
**Precision** is how closely repeated measurements agree with each other. Precision is usually expressed as standard deviation (SD).

**Accuracy** is defined as the nearness of a test result to the true value.

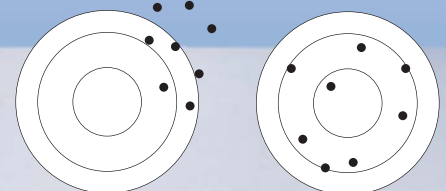
Although good precision suggests good accuracy, precise results can be inaccurate. The figure explains these definitions.



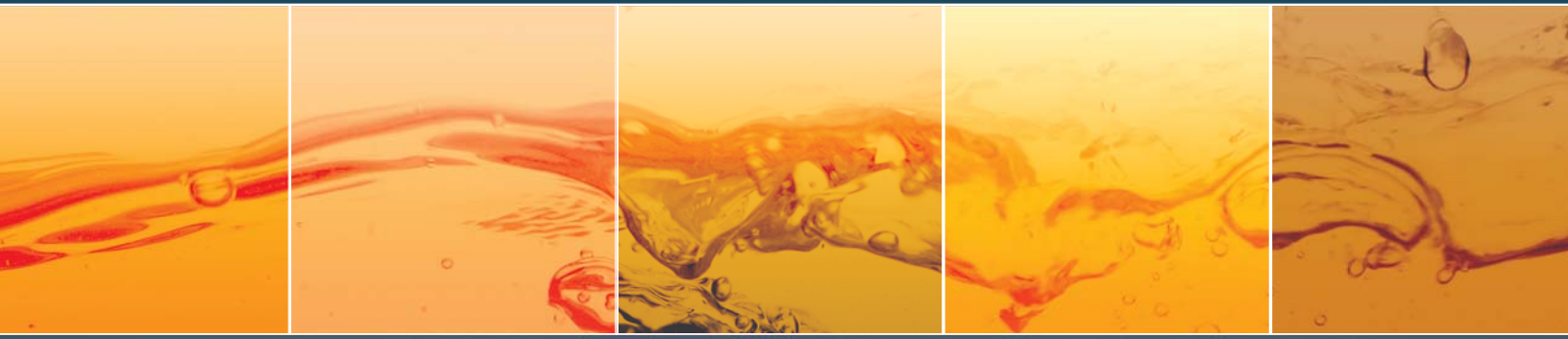
Precise, accurate



Precise, not accurate



Not precise, not accurate



HANNA instruments® is an ISO 9001:2000 Certified company

## Specifications

Parameter	Code	Range	Precision	Filter	Method
Ammonia, Medium Range	HI 96715	0.00 to 9.99 mg/L (as NH <sub>3</sub> -N)	±0.12 mg/L @ 6.00 mg/L	Narrow band @ 466 nm	Adaptation of the ASTM Manual of Water and Environmental Technology, D1426-93, Nessler Method. The reaction between ammonia and the reagents causes a yellow tint in the sample.
Chlorine, Ultra High Range	HI 96771	UHR: 0 to 500 mg/L LR: 0.00 to 5.00 mg/L	±2 mg/L @ 100 mg/L ±0.02 mg/L @ 1.00 mg/L	Narrow band @ 525 nm	Adaptation of Standard Methods, 20th edition, 4500-Cl. The reaction between chlorine and the reagents causes a yellow tint (UHR) or pink tint (LR) in the sample.
Chlorine, Free	HI 96701	0.00 to 5.00 mg/L	±0.02 mg/L @ 1.00 mg/L	Narrow band @ 525 nm	Adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G. The reaction between free chlorine and the DPD reagent causes a pink tint in the sample.
Chlorine, Free for Drinking Water Applications	HI 96762	0.000 to 0.500 mg/L	±0.004 mg/L @ 0.200 mg/L	Narrow band @ 525 nm	Adaptation of Standard Methods, 20th edition, 4500-Cl G. The reaction between chlorine and the DPD reagent causes a pink tint in the sample.
Chlorine, Free and Total	HI 96724	Free Cl <sub>2</sub> : 0.00 to 5.00 mg/L; Total Cl <sub>2</sub> : 0.00 to 5.00 mg/L	±0.03 mg/L @ 1.00 mg/L	Narrow band @ 525 nm	Adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G. The reaction between chlorine and the reagents causes a pink tint in the sample.
Chlorine, Free and Total High Range	HI 96734	Free Cl <sub>2</sub> : 0.00 to 10.00 mg/L; Total Cl <sub>2</sub> : 0.00 to 10.00 mg/L	±0.06 mg/L @ 3.00 mg/L	Narrow band @ 525 nm	Adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G. The reaction between free chlorine and the DPD reagent causes a pink tint in the sample.
Chlorine, Total for the Analysis of Trace Total Chlorine Concentration	HI 96761	0.000 to 0.500 mg/L	±0.004 mg/L @ 0.200 mg/L	Narrow band @ 525 nm	Adaptation of Standard Methods, 20th edition, 4500-Cl G. The reaction between chlorine and the DPD reagent causes a pink tint in the sample.
Copper, Low Range	HI 96747	0.000 to 1.500 mg/L	±0.015 mg/L @ 0.750 mg/L	Narrow band @ 560 nm	Adaptation of the USEPA approved bicinchoninate method. The reaction between Copper and the bicinchoninate reagent causes a purple tint in the sample.
Detergents, Anionic	HI 96769	0.00 to 3.50 mg/L (as SDBS)	±0.04 mg/L @ 1.00 mg/L	Narrow band @ 610 nm	Adaptation of the USEPA method 425.1 for drinking waters, surface waters, domestic and industrial wastes and Standard Methods, 20th edition, 5540C, Anionic Surfactants as MBAS.
Fluoride, Low Range	HI 96729	0.00 to 2.00 mg/L	±0.03 mg/L @ 1.00 mg/L	Narrow band @ 575 nm	Adaptation of the EPA method 340.1 and SPADNS method.
Iron, High Range	HI 96721	0.00 to 5.00 mg/L	±0.01 mg/L @ 1.50 mg/L	Narrow band @ 525 nm	Adaptation of the USEPA method 315B and Standard Method 3500-Fe B. The reaction between iron and the phenantroline reagent causes an orange tint in the sample.
Nitrite, Low Range	HI 96707	0.000 to 0.600 mg/L (as NO <sub>2</sub> <sup>-</sup> -N)	±0.001 mg/L @ 0.100 mg/L	Narrow band @ 525 nm	Adaptation of an EPA approved method. The reaction between Nitrite and the reagent causes a pink tint in the sample.
Phosphate, High Range	HI 96717	0.0 to 30.0 mg/L	±0.5 mg/L @ 12 mg/L	Narrow band @ 525 nm	Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater. The reaction between phosphate and the reagents causes a blue tint in the sample.
Phosphorus	HI 96706	0.0 to 15.0 mg/L	±0.2 mg/L @ 6.0 mg/L	Narrow band @ 525 nm	Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater. The reaction between phosphorus and the reagents causes a blue tint in the sample.

### Specifications common to all models

Light Source	Tungsten lamp; LED (HI 96715 only)
Environment	0 to 50°C (32 to 122°F); Max 95% RH non-condensing
Battery Type/Life	(1) 9V/approx. 200 hours continuous use
Auto Shut-off	After 10 min. of non-use in measurement mode
Dimensions/Weight	192 x 102 x 67 mm (7.6 x 4 x 2.6")/290 g (10 oz.)

**Ordering information:** HI 96 series of photometers are supplied with reagents, CAL CHECK™ standards, cuvet tissue, batteries, instruction manual and hard carrying case.

For more information or for a distributor near you:

**800.504.2662**

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