



*Be Right™*

# Master Catalog

Comprehensive Water Analysis





## New Product Announcements



Discover the Future of Water Management with Hach. Unlock the door to innovation and explore the latest advancements in water management solutions by Hach®. With a legacy of excellence spanning nearly a century, Hach remains at the forefront of the industry, continuously evolving to meet the demands of efficient and precise water management. Stay informed about our newest products and solutions that are shaping the future of water analysis.

**LEARN MORE ABOUT NEW HACH PRODUCTS!**



## Promotions



Our current promotions are a splash of savings and innovation, designed to enhance your water analysis experience. From discounts on top-tier instruments to special offers on our chemical reagents, there's something for everyone. To discover the latest promotion that's making waves, simply scan the QR code. Stay current with Hach's dynamic deals and elevate your water management solutions today!

**SEE THE LATEST SPECIAL OFFERS!**



## Gift of the Month Club



By referencing the Catalog Promo Code when placing your order, you'll be enrolled in our exclusive Gift of the Month Club, ensuring you receive a special free gift with each monthly purchase. It's our way of saying thank you for choosing Hach, and to add a little extra joy to your water analysis journey. Remember, each month brings a new surprise, so don't forget to use the promo code with every order!

**USE THIS PROMO CODE WITH EVERY ORDER!**

**SurpriseME**





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# Ensuring Water Quality for People Around the World



## At Hach, we provide innovative solutions for water quality analysis.

With a rich history of more than 90 years, Hach has been at the forefront of developing reliable, easy-to-use products and services that ensure water quality for people around the world.

Our comprehensive range of instruments, chemistries, software, and services are designed to meet the needs of our customers in various industries, including municipal water, wastewater, food and beverage, and power.

Our commitment to excellence is reflected in our continuous investment in research and development, ensuring that we deliver cutting-edge technologies. As we make water analysis better, faster, and simpler, we empower our customers to make informed decisions with confidence and reach their water quality goals.

Join us in our mission to ensure water quality for everyone, everywhere.





# Our Sustainability Commitment

## Hach is dedicated to conducting our business in an environmentally responsible manner.

We comply with all applicable environmental, health, and safety laws and regulations. This commitment helps promote and protect the health and safety of associates, customers, and local communities worldwide.

Hach has been recognized globally for our sustainability efforts. We received a Silver Medal from EcoVadis, placing it in the top 15% of all companies in our sector rated by EcoVadis. This recognition highlights the depth and breadth of Hach's sustainability program globally.



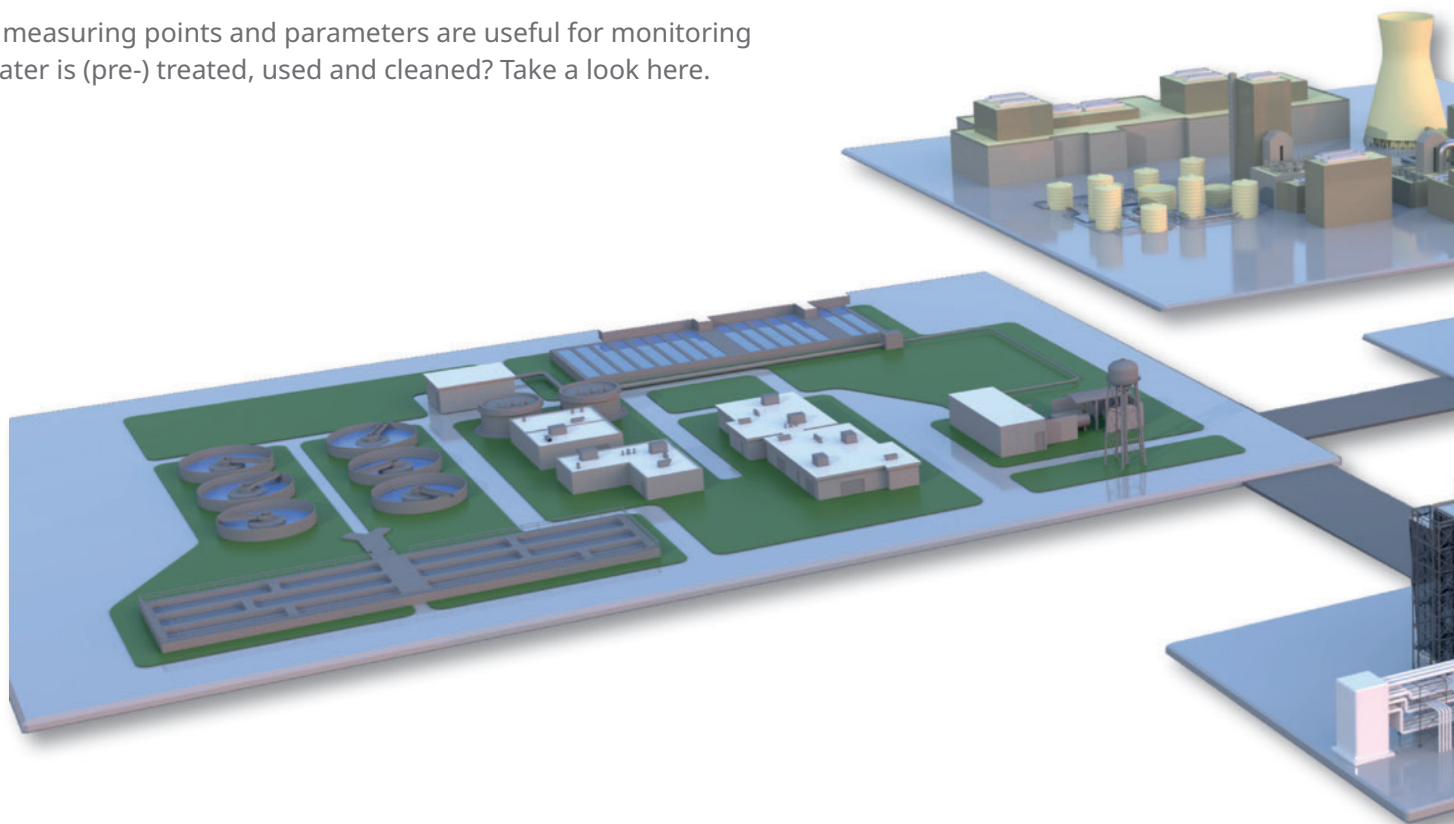
Additionally, Hach encourages all associates to contribute to sustainability efforts, from simple actions like turning off lights to ensuring proper waste disposal.



# Hach Water Analysis Solutions

## For Municipal Treatment & Industrial Water Cycles

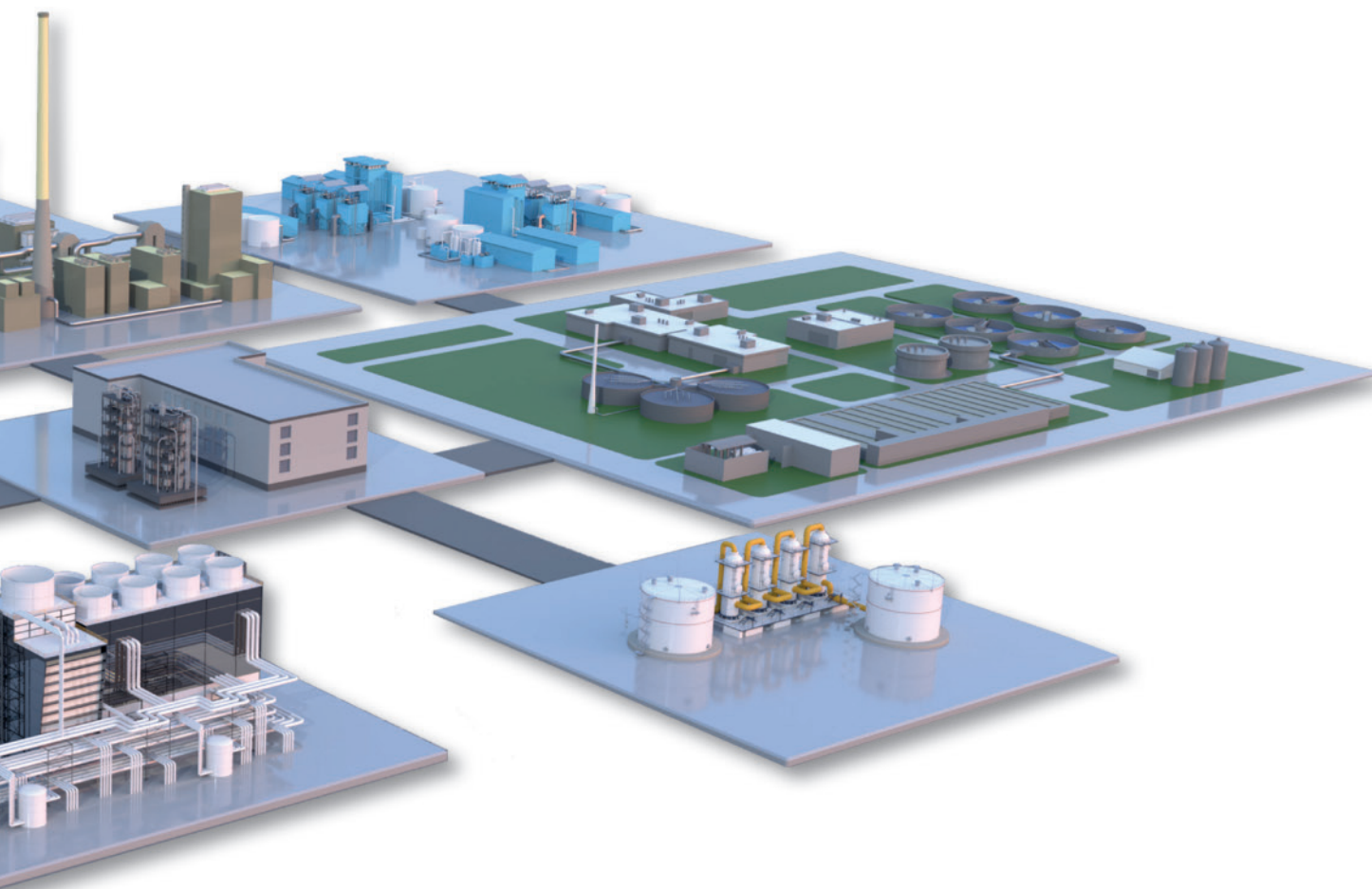
Which measuring points and parameters are useful for monitoring how water is (pre-) treated, used and cleaned? Take a look here.



Parameter	Process Steps	Analysis
Absorption	5	⚙️
Alkalinity	1, 2, 3, 6, 11	⚙️ ⚙️
Aluminum	1, 2, 3	⚙️ ⚙️
Ammonium	1, 4, 11	⚙️ ⚙️
Ammonium/Monochloramine (only UK)	2	⚙️ ⚙️
Automatic Sampling	1, 7, 8, 11	
Chloride	3, 4, 6, 9, 10	⚙️ ⚙️
Chlorine	1, 2, 3, 6, 11	⚙️ ⚙️
Chlorine Dioxide	2	⚙️ ⚙️
COD Baseline Monitoring	7, 8	⚙️
Color	5, 7, 8	⚙️ ⚙️
Conductivity	2, 6, 7, 8, 9, 10, 11	⚙️ ⚙️
Corrosion Parameters (Iron, Copper)	3, 4	⚙️ ⚙️
Cyanide	9, 10	⚙️ ⚙️
Degassed Conductivity	3, 4	⚙️
Disinfectants (Chlorine, Chlorine Dioxide, Ozone)	7, 8	⚙️ ⚙️
Dissolved Hydrogen	3	⚙️
Dissolved Oxygen	1, 2, 3, 4, 6, 11	⚙️ ⚙️
Fluoride	9, 10	⚙️ ⚙️
Hardness	1, 3, 6	⚙️ ⚙️

Parameter	Process Steps	Analysis
Iron	1	⚙️ ⚙️
Manganese	1	⚙️ ⚙️
Microbial Load (ATP)	1, 2, 6, 7, 8	⚙️
Molybdenum	6	⚙️
Nitrate	1, 11	⚙️ ⚙️
Oil in Water	1, 3, 4, 7, 8	⚙️
Organic Acids	11	⚙️ ⚙️
ORP / Redox	1, 2, 4, 6, 11	⚙️ ⚙️
Oxygen Scavengers	3, 4, 6	⚙️
Ozone	2	⚙️ ⚙️
Permanganate	2	⚙️
pH / Temperature	1 - 11	⚙️ ⚙️
Phosphate	2, 3, 4, 11	⚙️ ⚙️
Production plant specific contaminations: event / baseline monitoring	7, 8	⚙️
Production specific quality control parameters (e.g. salt, Bitter Units, own methods)	5	⚙️
SAC	1, 2	⚙️ ⚙️
Silica	3, 4, 6	⚙️ ⚙️
Sludge Level	1, 2, 11	⚙️
Sodium	3, 4, 6	⚙️ ⚙️





Parameter	Process Steps	Analysis
Specific & Cationic Conductivity	3, 4, 6	⚙️
Specific Conductivity	1, 2, 3, 4, 6, 10	⚙️
Sulfate	10	🧪 ⚙️
Sulfide	7, 8, 9, 10	🧪 ⚙️
Suspended Solids	2, 11	⚙️
TOC	1, 2, 3, 4, 6, 9, 10, 11	🧪 ⚙️
TOC / VOC baseline	7, 8	⚙️
TOC / COD / BOD	11	🧪 ⚙️
TOC / SAC	11	🧪 ⚙️
Total Nitrogen	11	🧪 ⚙️
Total Phosphorus	6, 11	🧪 ⚙️
Toxicity	7, 8, 11	⚙️
Trace Metals (Copper, Nickel, Aluminum...)	6, 7, 8, 10	🧪 ⚙️
Turbidity	1, 2, 3, 4, 5, 6, 8, 9, 10, 11	🧪 ⚙️
UV Transmission	2	🧪
RTC-C/DC	2, 6	⚙️
RTC-CNP	11	⚙️
RTC-DAF	9	⚙️
RTC-N (for Ammonium)	11	⚙️
RTC-N/DN (for Nutrients)	11	⚙️

Parameter	Process Steps	Analysis
RTC-P (for Phosphate)	11	⚙️
RTC-SD (for Suspended Solids)	11	⚙️
RTC-ST (for Suspended Solids)	11	⚙️

### Process Steps

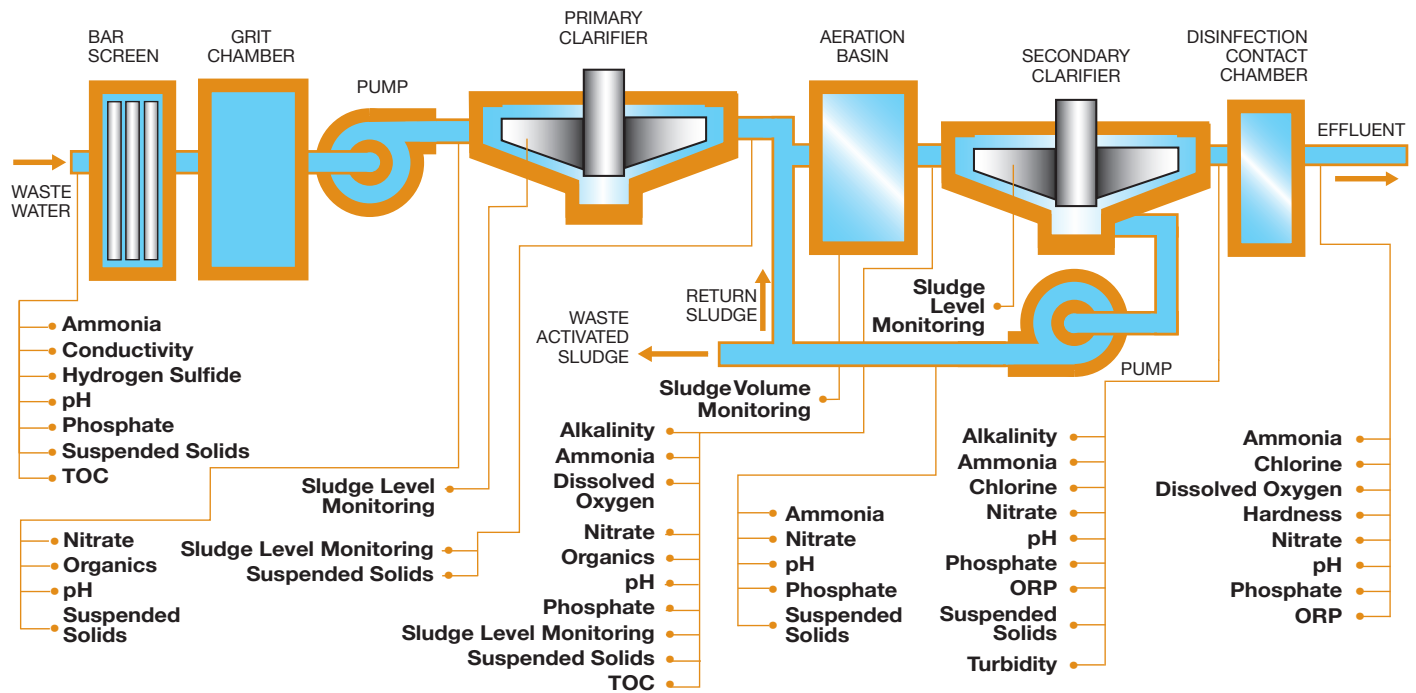
- 1 Source Water Intake
- 2 Source Water Processing & Treatment
- 3 Pure & Ultra-Pure Water Treatment & Polishing
- 4 Hot Water, Steam & Power Generation
- 5 Environmental, production line & Quality Control laboratories
- 6 Cooling Water Conditioning / Make Up Water
- 7 Cooling Water Return
- 8 Condensate Return
- 9 Production Wastewater Discharge & Wastewater Pretreatment
- 10 Sewer Management
- 11 Biological Wastewater Treatment Plant

🧪 Laboratory analysis solution

⚙️ Online process analysis solution

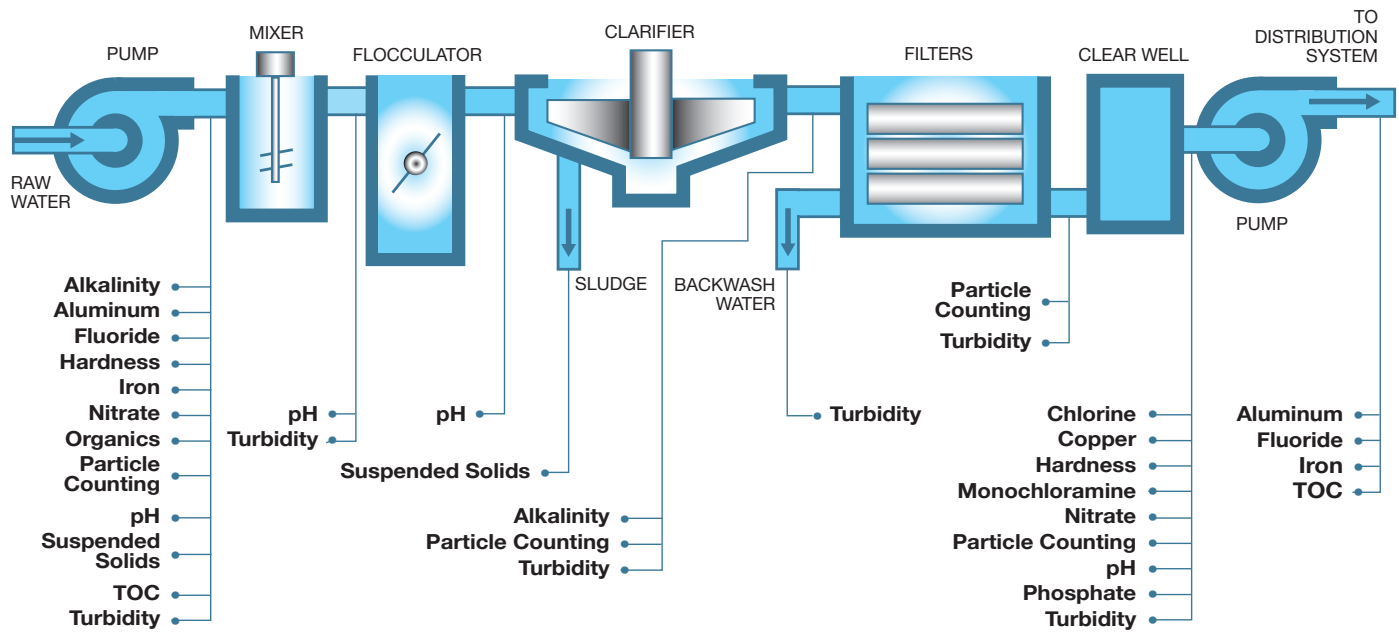


# Wastewater Treatment Flow Diagram



Parameters	Collection System	Infuent	Primary Sedimentation Tank	Aeration Tank	Secondary Sedimentation Tank	Tertiary Treatment	Disinfection	Nutrients Removal	Digestion Tank	Sludge	Effluent	Online Analyzers & Instruments	Laboratory & Potable Instruments	Test Kits
Alkalinity		•	•	•	•			•		•	•		•	•
Ammonia		•	•	•	•	•	•	•			•	•	•	•
BOD		•		•							•		•	
Chlorine							•				•	•	•	•
COD		•									•		•	
Conductivity		•	•	•	•			•			•	•	•	
Dissolved Oxygen	•			•	•	•		•	•	•	•	•	•	
Total Coliform				•	•		•			•	•		•	•
Fecal Coliform				•	•		•			•	•		•	•
Flow Rate	•	•	•	•	•	•	•	•	•	•	•	•		
Hardness		•	•	•	•			•		•	•		•	•
Hydrogen Sulfide	•	•	•									•	•	
Nitrate				•	•	•		•			•	•	•	•
Nitrite													•	
Nitrogen				•	•	•		•			•		•	
Organics		•		•	•	•					•	•		
ORP	•		•	•		•	•	•	•		•	•	•	
Ozone						•	•					•	•	•
pH	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Phosphates								•				•	•	
Total Phosphorous											•		•	•
Suspended Solids	•	•	•	•	•	•		•	•	•	•	•	•	
Turbidity		•		•	•	•					•	•	•	

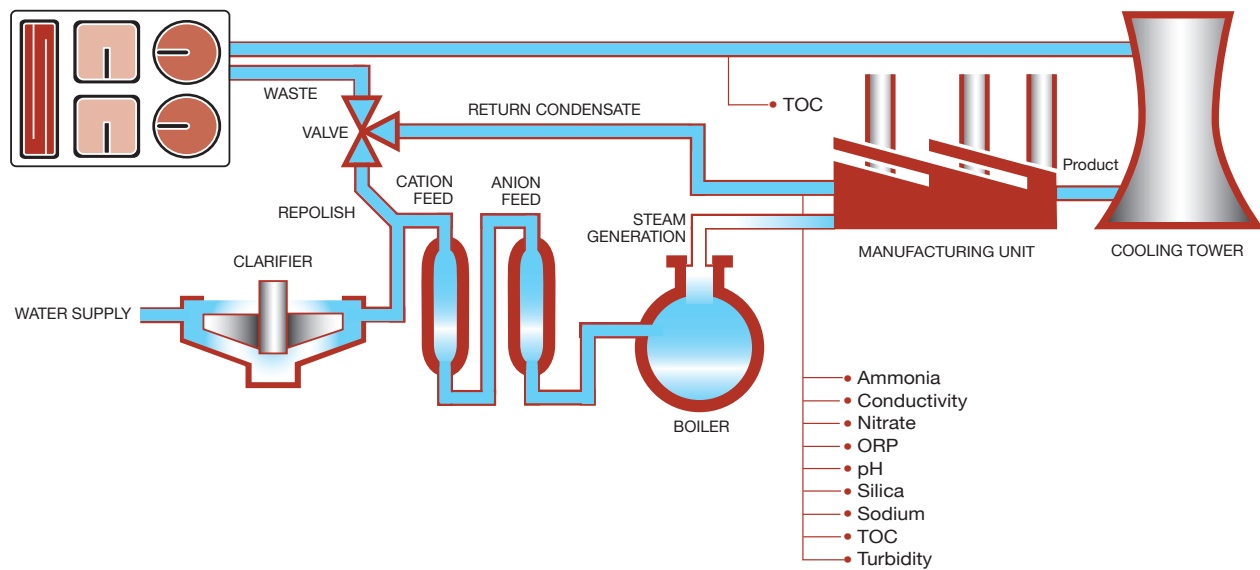
# Drinking Water Treatment Flow Diagram



Parameter	Raw Water / Inlet	Particle Removal	Filter Inlet	Filter / Membrane Outlet	Clear Well	Outlet	Distribution	Online Sensors and Instruments	Laboratory and Portable Instruments	Test Kits
Alkalinity (P&T)	•		•			•	•	•	•	•
Aluminum	•		•	•		•	•		•	•
Ammonia	•					•	•	•	•	•
Chlorine	•			•	•	•	•	•	•	•
Conductivity	•					•	•	•	•	
Copper	•					•	•		•	•
Dissolved Oxygen	•		•				•	•	•	•
Fluoride	•						•	•	•	•
Hardness (T&Ca)	•					•	•	•	•	•
Iron	•				•	•	•		•	•
Manganese	•				•	•	•		•	•
MonoChloride	•				•	•	•	•	•	•
Nitrate	•			•	•	•		•	•	•
Organics (UV254)	•							•	•	•
ORP	•							•	•	•
Ozone	•	•	•	•				•	•	
Particle counter	•		•		•	•		•	•	
pH	•	•	•		•	•	•	•	•	•
Phosphate	•					•	•	•	•	•
Sludge	•							•		
Sulfate	•								•	•
Suspended solids	•							•	•	
TOC	•					•	•	•		
Turbidity	•	•	•	•	•	•	•	•	•	



# Industrial Water Flow Diagram



Parameter	Online Sensors and Analyzers	Laboratory and Portable Analyzers	Test Kits and Test Strips	Reagent
Alkalinity	•	•	•	•
Ammonia	•	•	•	•
BOD		•		•
COD		•	•	•
Chloride		•	•	•
Chlorine	•	•	•	•
Chlorine dioxide	•	•	•	•
Conductivity	•	•	•	•
Copper	•	•	•	•
Dissolved oxygen	•	•	•	•
Flow rate & Auto sampler	•			
Hardness	•	•	•	•
Iron		•	•	•
Aluminum		•	•	•
Germ culture		•	•	•
Molybdate		•	•	•
Monochloramine	•	•		•
Nitrate	•	•	•	•
Nitrite		•		•
Nitrogen		•	•	•
Organics (UV254)	•	•	•	
Ozone	•	•	•	•
pH/ORP	•	•	•	•
Deoxidant	•	•	•	•
Phosphorous	•	•	•	•
Silica	•	•	•	•
Sodium	•	•		•
Sulfate		•	•	•
TOC	•	•		•
Turbidity & Suspended solids	•	•	•	•



# Lab Chemistries

Hach Prepared Reagents Overview

TNTplus Vial Chemistries

Powder Pillows

Chemkey Reagents

Hach TNT Vials

Swiftest Dispenser

Accuvacs

Hach Standard Solutions

Test Kits

Test Strips

Microbiological Products



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# Hach Prepared Reagents



## TNTplus Vial Chemistries (13 mm)

Hach's DR6000 and DR3900 spectrophotometers read the vial barcode to automatically select and run the correct method, and check shelf life of the reagents, thus eliminating human error and speeding up analysis. No reagent blank necessary —this saves you time and money.

## Powder Pillows

Prepackaged unit dose reagent with extended shelf life and tightly-controlled weight fill. Our most cost-conscious reagent platform.

## Chemkey Reagents

Chemkey reagents execute the same process steps that you have trusted for decades — now delivered in a simple, self-contained package. All chemicals and processes are entirely contained inside the Chemkey. There is no zeroing, no mixing, no shaking, no chemicals or vials to handle. All you have to do is insert the Chemkey into the SL250/SL1000 PPA and let the instrument read you back the results.

## TNT (Test 'N Tube) Vials (16 mm)

Vial chemistry platform that incorporates powder pillow technology for economical, easy-to-use methods. The right blend of simplicity and economy.

## Swiftest Reagent Dispenser

The easy way to dispense reagents for high volume testing. No need to open individual packets - just squeeze! Reloading is simple with easy-to-use vials.

## Accuvac Ampules

Optical-quality, vacuum-sealed glass ampules that contain the precise amount of reagent needed for a single test and can be used as the measurement cuvette. Quick, easy, and economical. Snap the tip and the ampule draws in the correct amount of sample.

**Learn More**



# TNTplus® Vial Chemistries

## Expert water analysis made simple.

### Reduce errors

A unique barcode label on each Hach® TNTplus Vial Chemistry is automatically read by the spectrophotometer when used with Hach's DR6000™ UV-VIS Spectrophotometer or DR3900™ Benchtop Spe-13-13ctrophotometer to identify the appropriate method and take the measurement. This significantly reduces errors as well as scratched, flawed or dirty glassware becomes non-issue as the instrument averages 10 readings and rejects outliers.

### Lot after Lot - Be Right

Truecal™ with each vial includes the calibration data for each individual lot, reducing variation in results. This allows you to meet reporting standards and to perform proficiency testing with higher confidence.

Truecal supports many TNTplus vial test wastewater parameters such as ammonia, COD, nitrate, phosphate and Total N.

### Documented shelf life and COA

The barcode details batch number and expiry date of reagents, which are documented along with the measurement result. An automatic warning is issued if expiry date has passed. Certificate of Analysis (COA) is available on RFID\* tag on the box, which can be read out with the DR6000 or DR3900 spectrophotometer.

### No reagent blank necessary

The high quality of TNTplus vials, tight reagent production controls, instrument calibration verification, and high instrument stability all combine to eliminate the need to run reagent blanks —saving you time and money!

### Safe and easy handling

TNTplus vials use innovative Dosicaps that are easier to use than powder pillows or liquid reagents. There's no risk of spillage, no safety risk, or risk of contamination with Dosicaps because the reagents are completely contained within the vial cap. The glassware used assures the best precision and the vials have a flat bottom so they can stand on their own.

Packages of TNTplus vials are color-coded for fast and easy parameter and range recognition for the exact test you need. Step-by-step illustrated test methods are printed on the box for quick reference.



## Order Information

### Accessories

- TNT890** Metals Prep Set (used for Cu, Fe, Pb, Cd, & Ni digestion), 50 digestions
- TNT892** Calcium Separation Set (for Cadmium TNTplus Test TNT852), 24 separations
- TNT919** Sample Blank Vials for TNTplus, 5/pk
- BBP078** Pipet, Variable Volume, 0.1-1.0 mL
- BBP065** Pipet, Variable Volume, 1.0-5.0 mL
- BBP079** Pipet Tips for 0.1-1.0 mL Pipet (BBP078), 100/pk
- BBP072** Pipet Tips for 1.0-5.0 mL Pipet (BBP065), 100/pk
- LZP320** Pipet Set BBP065 & BBP078, with tips



### Learn More





## TNTplus Vial Tests\*

Prod. No.	Parameter	Range	Method Name	Method Number	Truecal	EPA
TNT870	Alkalinity, Total	25 - 400 mg/L CaCO <sub>3</sub>	Colorimetric	10239		
TNT848	Aluminium	0.02 - 0.50 mg/L Al	Chromazurol S	10215		
TNT830	Ammonia, Nitrogen	0.015 - 2.00 mg/L NH <sub>3</sub> -N	Salicylate	10205	Yes	Yes
TNT829		0.50 - 5.00 mg/L NH <sub>3</sub> -N	Salicylate	10205	Yes	
TNT831		1 - 12 mg/L NH <sub>3</sub> -N	Salicylate	10205	Yes	Yes
TNT832		2 - 47 mg/L NH <sub>3</sub> -N	Salicylate	10205	Yes	Yes
TNT837		10 - 100 mg/L NH <sub>3</sub> -N	Salicylate	10205	Yes	
TNT833		47 - 130 mg/L NH <sub>3</sub> -N	Salicylate	10205	Yes	Yes
TNT834		100 - 1800 mg/L NH <sub>3</sub> -N	Salicylate	10301		Yes
TNT882KTO	Anammox Activity	0 - 1000 mAbs	Heme	10304		
TNT817	International Bitter Units	≥2 International Bitter Units	Analogous MEBAK and ASBC	10288		
TNT877	Boron	0.05 - 2.50 mg/L B	Azomethine-H	10274		
TNT852	Cadmium	0.02 - 0.30 mg/L Cd	Cadion	10217		
TNT879	Chloride	1 - 70 mg/L Cl 70 - 1000 mg/L Cl	Iron(III)-thiocyanate	10291		
TNT866	Chlorine, Free	0.05 - 2.00 mg/L Cl <sub>2</sub>	DPD	10231		Yes
TNT867	Chlorine, Total	0.05 - 2.00 mg/L Cl <sub>2</sub>	DPD	10231, 10232		Yes
TNT854	Chromium, Hexavalent Chromium, Total	0.03 - 1.00 mg/L Cr	1,5-Diphenylcarbohydrazide	10218 10219		Yes
TNT820	COD (Chemical Oxygen Demand)	1 - 60 mg/L COD	Reactor Digestion	10211	Yes	
TNT821		3 - 150 mg/L COD	Reactor Digestion	8000	Yes	Yes
TNT822		20 - 1500 mg/L COD	Reactor Digestion	8000	Yes	Yes
TNT823		250 - 15000 mg/L COD	Reactor Digestion	10212	Yes	
TNT824		5,000 - 60,000 mg/L	Reactor Digestion	10212	Yes	
TNT815	COD (for samples up to 20000 mg/L Chloride)	7 - 70 mg/L COD	Reactor Digestion	10299		
TNT816		70 - 1000 mg/L COD	Reactor Digestion	10299		
TNT825	COD (Chemical Oxygen Demand), Mercury-Free	25 - 1000 mg/L COD	Reactor Digestion	8000		
TNT860	Copper	0.1 - 8.0 mg/L Cu	Bathocuproin	10238		
TNT862	Cyanide	0.01 - 0.6 mg/L CN	Pyridine barbituric acid	10265		Yes
TNT878	Fluoride	0.1 - 2.5 mg/L F	SPADNS 2	10225		Yes
TNT871	Formaldehyde	0.5 - 10 mg/L H <sub>2</sub> CO	Acetylacetone	10295		
TNT858	Iron, Ferrous Iron, Total	0.2 - 6.0 mg/L Fe	1, 10 Phenanthroline	10229		Yes
TNT850	Lead	0.1 - 2.0 mg/L Pb	PAR	10216		
TNT849	Magnesium	0.5 - 50 mg/L Mg	Metalphthalein	10292		
TNT856	Nickel	0.1 - 6.0 mg/L Ni	Dimethylglyoxime	10220		
TNT835	Nitrate, Nitrogen	0.23 - 13.50 mg/L NO <sub>3</sub> -N	Dimethylphenol	10206	Yes	Yes
TNT836		5 - 35 mg/L NO <sub>3</sub> -N	Dimethylphenol	10206	Yes	Yes
TNT838		15 - 150 mg/L NO <sub>3</sub> -N	Dimethylphenol	10206	Yes	
TNT839	Nitrite, Nitrogen	0.015 - 0.600 mg/L NO <sub>2</sub> -N	Diazotization	10207	Yes	Yes
TNT840		0.6 - 6.0 mg/L NO <sub>2</sub> -N	Diazotization	10237	Yes	Yes
TNT841		2 - 90 mg/L NO <sub>2</sub> -N	Diazotization	10296		
TNT880	Nitrogen, Simplified Total Kjeldahl	0 - 16 mg/L N	Simplified TKN (s-TKN™)	10242	Yes	Yes
TNT826	Nitrogen, Total	1 - 16 mg/L N	Persulfate Digestion	10208	Yes	
TNT827		5 - 40 mg/L N	Persulfate Digestion	10208	Yes	
TNT828		20 - 100 mg/L N	Persulfate Digestion	10208	Yes	
TNT818		100 - 250 mg/L N	Persulfate Digestion	10208	Yes	
TNT868	Phenols	5 - 150 mg/L	4-Aminoantipyrine	10266		Yes

**TNTplus Vial Tests\***

Prod. No.	Parameter	Range	Method Name	Method Number	Truecal	EPA
<b>TNT846</b>	Phosphorus, Reactive (Ortho)	1.6 - 30 mg/L PO <sub>4</sub> -P; 5 - 90 mg/L PO <sub>4</sub>	Molybdovanadate	10214		
<b>TNT843</b>	Phosphorus, Acid Hydrolyzable	0.05 - 1.5 mg/L PO <sub>4</sub> -P; 0.15 - 4.5 mg/L PO <sub>4</sub>	Ascorbic Acid	10209	Yes	Yes
<b>TNT844</b>	Phosphorus, Reactive (Ortho)	0.5 - 5.0 mg/L PO <sub>4</sub> -P; 1.5 - 15.0 mg/L PO <sub>4</sub>	Ascorbic Acid	10209	Yes	Yes
<b>TNT845</b>	Phosphorus, Total	2 - 20 mg/L PO <sub>4</sub> -P; 6 - 60 mg/L PO <sub>4</sub>	Ascorbic Acid	10209	Yes	Yes
<b>TNT864</b>	Sulfate	40 - 150 mg/L SO <sub>4</sub>	Turbidimetric	10227		
<b>TNT865</b>	Sulfate	150 - 900 mg/L SO <sub>4</sub>	Turbidimetric	10227		
<b>TNT861</b>	Sulfide	0.1 - 2.0 mg/L S <sup>2-</sup>	Dimethyl-p-phenylenediamine	10294		Yes
<b>TNT874</b>	Surfactants, Anionic	0.1 - 4.0 mg/L	Methylene Blue (MBA)	10278		
<b>TNT885</b>	Surfactants, Cationic	0.2 - 2 mg/L as CTAB	Bromophenol Blue	10305		
<b>TNT875</b>	Surfactants, Nonionic	0.2 - 6.0 mg/L as Triton x 100	TBPE	10275		
<b>TNT876</b>	Surfactants, Nonionic	6 - 200 mg/L as Triton X-100	TBPE	10275		
<b>TNT810</b>	TOC (Total Organic Carbon)	1.5 - 30.0 mg/L C	Direct Method	10267		Yes
<b>TNT811</b>		30 - 300 mg/L C	Direct Method	10267		Yes
<b>TNT819</b>	Vicinal diketones (VDK)	0.015 - 0.5 mg/kg Diacetyl	Analogous MEBAK and ASBC	10276		
<b>TNT872</b>	Volatile Acids	50 - 2,500 mg/L Acetic Acid	Esterification	10240		
<b>TNT869</b>	Water Hardness	20 - 350 mg/L as CaCO <sub>3</sub> 5 - 100 mg/L Ca 3 - 50 mg/L Mg	Metaphthalein	10293		

See also DR3900, DR6000, and DR1900 spectrophotometer pages.

\*Subject to change without notice.

\*Part numbers may vary by country.





# Powder Pillows



## Low price per test methods with long shelf life

Powder Pillows are available for a large number of parameters and measuring ranges. Each powder pillow contains the exact amount of reagent needed for a single test, ensuring consistent and accurate measurements.

The multi-layer foil sealed packaging of powder pillows provides excellent shelf life, with some products lasting up to five years. The individual packaging prevents reagent contamination, maintaining the integrity of each test.

Powder pillows eliminate the need for measuring or weighing reagents, making the testing process simpler and more convenient. The compact, pre-measured packets are easy to transport and use in field testing situations.

### Overview PermaChem® Powder Pillows\*

Prod. No.	Parameter	Range	Method Name	Method Number	Number of tests	DR300	DR900	DR1900	DR3900	DR6000
2242000	Aluminum	0.008 - 0.800 mg/L Al	Aluminon	8012	100	•	•	•	•	•
2603700	Aluminum	0.002 - 0.250 mg/L Al	Eriochrome Cyanine R	8326	100			•	•	•
2668000	Ammonia	0.01 - 0.50 mg/L NH <sub>3</sub> -N	Salicylate	8155	100	•	•	•	•	•
2459200	Quaternary Ammonium Compounds	0.2 - 5.0 mg/L as CTAB	Direct Binary Complex	8337	100			•	•	•
1206499	Barium	2 - 100 mg/L Ba	Turbidimetric	8014	100			•	•	•
2141299	Benzotriazole, Tolyltriazole	1.0 - 16.0 mg/L Benzotriazole 1.0 - 20.0 mg/L Tolyltriazole	UV Photolysis	8079	100		•	•	•	•
1417099	Boron	0.2 - 14.0 mg/L B	Carmine	8015	100			•	•	•
2105669	Total Chlorine, Bromine, Iodine	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8167	100	•	•	•	•	•
2802246	Chloramine, Mono	0.04 - 4.50 mg/L Cl <sub>2</sub>	Indophenol	10171	50	•	•	•	•	•
2105569	Free Chlorine, Chlorine Dioxide	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8021	100	•	•	•	•	•
1407099	Chlorine, Free	0.1 - 10.0 mg/L Cl <sub>2</sub>	DPD	8021	100	•	•	•	•	•
2105528	Free Chlorine, Chlorine Dioxide	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8021	1000		•	•		•
2105628	Chlorine, Total	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8167	1000		•	•		•
2770900	Chlorine Dioxide	0.04 - 5.00 mg/L ClO <sub>2</sub>	DPD/Glycine	10126	100	•	•	•	•	•
1271099	Chromium	0.010 - 0.700 mg/L Cr <sup>6+</sup>	1,5-Diphenylcarbohydrazide	8023	100		•	•	•	•
2242500	Chromium, total	0.01 - 0.70 mg/L Cr	Alkaline Hypobromite Oxidation	8024	100		•	•	•	•
2651600	Cobalt, Nickel	0.01 - 2.00 mg/L Co	PAN	8078	100			•	•	•
2105869	Copper	0.04 - 5.00 mg/L Cu	Bichinchoninate	8506	100		•	•	•	•

## Overview PermaChem® Powder Pillows\*

Prod. No.	Parameter	Range	Method Name	Method Number	Number of tests	DR300	DR900	DR1900	DR3900	DR6000
2603300	Copper	2 - 210 µg/L Cu	Porphyrin	8143	100		•	•	•	•
2430200	Cyanide	0.002 - 0.240 CN <sup>-</sup>	Pyridine-Pyrazalone	8027	100		•	•	•	•
246066	Cyanuric Acid	5 - 50 mg/L	Turbidimetric	8139	50		•	•	•	
2544800	Iron	0.01 - 1.80 mg/L Fe	FerroMo	8365	100		•	•	•	•
2105769	Iron	0.02 - 3.00 mg/L Fe	FerroVer	8008	100	•	•	•	•	•
2608799	Iron	0.012 - 1.800 mg/L Fe	TPTZ	8112	100	•	•	•	•	•
230166	Iron	0.009 - 1.400 mg/L Fe	FerroZine	8147	50		•	•	•	•
103769	Iron, Ferrous	0.02 - 3.00 mg/L Fe <sup>2+</sup>	1, 10 Phenanthroline	8146	100		•	•	•	•
2430000	Manganese	0.1 - 20.0 mg/L Mn	Periodate Oxidation	8034	100	•	•	•	•	•
2604100	Molybdenum	0.3 - 40.0 mg/L Mo	Mercaptoacetic Acid	8036	100		•	•	•	•
2449400	Molybdenum, Molybdate	0.02 - 3.00 mg/L Mo	Ternary Complex	8169	100	•	•	•	•	•
2243500	Nickel	0.02 - 1.80 mg/L Ni	Heptoxime	8037	50			•	•	•
2106169	Nitrate	0.3 - 30.0 mg/L NO <sub>3</sub> -N	Cadmium Reduction	8039 HR	100		•	•	•	•
2429800	Nitrate, Nitrogen	0.01 - 0.50 mg/L NO <sub>3</sub> -N	Cadmium Reduction	8192	100		•	•	•	•
2107169	Nitrite	0.002 - 0.300 mg/L NO <sub>2</sub> -N	Diazotization	8507	100		•	•	•	•
2107569	Nitrite	2 - 250 mg/L NO <sub>2</sub>	Ferrous Sulfate	8153	100		•	•	•	•
2446600	Oxygen Scavengers	5 - 600 µg/L Carbohydrazide 3 - 450 µg/L DEHA 9 - 1000 µg/L Hydroquinone 13 - 1500 µg/L Iso-Ascorbic Acid 15 - 1000 µg/L Methyleneethyketoxime	Iron Reduction	8140	100		•	•	•	•
2243900	Phenols	0.002 - 0.200 mg/L	4-Aminoantipyrine	8047	100			•	•	•
2106028	Phosphate, Reactive	0.02 - 2.50 mg/L PO <sub>4</sub>	Ascorbic Acid	8048	1000		•	•	•	•
2106069	Phosphorus, Reactive	0.02 - 2.50 mg/L PO <sub>4</sub>	Ascorbic Acid	8048	100	•	•	•	•	•
2429700	Phosphonates	0.02 - 2.50 mg/L PO <sub>4</sub>	Persulfate UV Oxidation	8007	100		•	•	•	•
2460000	Potassium	0.1 - 7.0 mg/L K	Tetraphenylborate	10321	100		•	•	•	•
2429600	Silica	1 - 100 mg/L SiO <sub>2</sub>	Silicomolybdate	8185	100		•	•	•	•
2459300	Silica	0.010 - 1.600 mg/L SiO <sub>2</sub>	Heteropoly Blue	8186	100		•	•	•	•
2296600	Silver	0.02 - 0.70 mg/L Ag	Colorimetric	8120	50			•	•	•
2106769	Sulfate	2 - 70 mg/L SO <sub>4</sub> <sup>2-</sup>	SulfaVer 4	8051	100		•	•	•	•
2429300	Zinc	0.01 - 3.00 mg/L Zn	Zincon	8009	100	•	•	•	•	•

\*Subject to change without notice. Part numbers may vary by country.

Additional Powder Pillows are available. Visit [hach.com](http://hach.com) to learn more.

## Learn More





# Chemkey Reagents



Use innovative Chemkey® technology with the SL250 and SL1000 Portable Parallel Analysers (PPA) for dramatically streamlined water quality testing.

## Same Trusted Technology

Chemkey reagents execute the same process steps that you have trusted for decades — now delivered in a simple, self-contained package. All chemicals and processes are entirely contained inside the Chemkey.

## Less Hassle

There is no zeroing, no mixing, no shaking, no chemicals or vials to handle. All you have to do is insert the Chemkey and let the instrument read you back the results.

## Increasing Portfolio

We continue to release new Chemkeys in order to expand the capability and functionality of your SL250 or SL1000 instrument.

### Technical Specifications\*

Prod. No.	Parameter	Range	Quantity	SL1000	SL250
8636200	Alkalinity, LR	20 - 200 mg/L CaCO <sub>3</sub>	pk/25	•	•
8636100	Alkalinity, HR	200 - 700 mg/L CaCO <sub>3</sub>	pk/25	•	•
9429500	Ammonia, Free	0.05 - 0.50 mg/L NH <sub>3</sub> -N	pk/25	•	
9429600	Ammonia, Free; Monochloramine	Free Ammonia: 0.05 - 0.50 mg/L NH <sub>3</sub> -N Monochloramine: 0.04 - 4.00 mg/L Cl <sub>2</sub>	pk/50	•	
8791900	Ammonia, Free & Total; Monochloramine	Free Ammonia: 0.05 - 0.50 mg/L NH <sub>3</sub> -N Total Ammonia: 0.05 - 1.50 mg/L NH <sub>3</sub> -N Monochloramine: 0.04 - 4.00 mg/L Cl <sub>2</sub>	pk/50	•	
9425200	Ammonia, Total	0.05 - 1.50 mg/L NH <sub>3</sub> -N	pk/25	•	•
9429000	Chlorine, Free	0.04 - 4.00 mg/L Cl <sub>2</sub>	pk/25	•	•
8499300	Chlorine, Free	0.04 - 4.00 mg/L Cl <sub>2</sub>	pk/300	•	•
9429100	Chlorine, Total	0.04 - 10 mg/L Cl <sub>2</sub>	pk/25	•	•
8499400	Chlorine, Total	0.04 - 10 mg/L Cl <sub>2</sub>	pk/300	•	•
9429200	Copper	0.06 - 5.00 mg/L Cu	pk/25	•	•
8636000	Dissolved Iron	0.05 - 3.00 mg/L Fe	pk/25	•	•
9878000	Fluoride	0.10 - 4.0 mg/L F	pk/25	•	•
8636400	Hardness, LR	3 - 100 mg/L CaCO <sub>3</sub>	pk/25	•	•
8636300	Hardness, HR	90 - 750 mg/L CaCO <sub>3</sub>	pk/25	•	•
3007000	Manganese, HR	0.10 - 25.0 mg/L Mn	pk/25	•	•
9429400	Monochloramine	0.04 - 4.00 mg/L Cl <sub>2</sub>	pk/25	•	•
9429300	Nitrite	0.005 - 0.600 mg/L NO <sub>2</sub> -N	pk/25	•	•
8636500	Orthophosphate, HR	2.0 - 30.0 mg/L PO <sub>4</sub>	pk/25	•	•
8636600	Orthophosphate, LR	0.20 - 4.00 mg/L PO <sub>4</sub>	pk/25	•	•
8635200	Peracetic Acid	0.04 - 50.0 mg/L PAA	pk/25	•	•
9759000	pH	pH 6.3 - 9.0	pk/25	•	•
9879000	Zinc	0.10 - 6.0 mg/L Zn	pk/25	•	•

See also SL1000 and SL250 Portable Parallel Analyzer pages.

\*Subject to change without notice.

Learn More



# Hach TNT (Test 'N Tube) Vials (16 mm)



Vial chemistry platform that incorporates Permachem powder technology for economical, easy-to-use methods. The right blend of simplicity and economy.

## Overview TNT Tests (16 mm)\*

Prod. No.	Parameter	Range	Method Name	Method Number	Quality Control	Number of tests	DR300	DR900	DR1900	DR3900	DR6000
2604545	Ammonia	0.02 - 2.50 mg/L NH <sub>3</sub> -N	Salicylate	10023	189149, 15349	25 - 50		•	•	•	•
2606945	Ammonia	0.4 - 50.0 mg/L NH <sub>3</sub> -N	Salicylate	10031	189149, 15349	25 - 50		•	•	•	•
2125825	COD (Chemical Oxygen Demand)	3 - 150 mg/L	Reactor Digestion	8000		25		•	•	•	•
2125815	Chemical Oxygen Demand	3 - 150 mg/L	Reactor Digestion	8000		150		•	•	•	•
2125915	COD (Chemical Oxygen Demand)	20 - 1500 mg/L	Reactor Digestion	8000		150		•	•	•	•
2125925	COD (Chemical Oxygen Demand)	20 - 1500 mg/L	Reactor Digestion	8000		25		•	•	•	•
2415815	COD (Chemical Oxygen Demand)	0.7 - 40.0 mg/L	Reactor Digestion	8000		150		•	•	•	•
2415825	COD (Chemical Oxygen Demand)	0.7 - 40.0 mg/L	Reactor Digestion	8000		25			•	•	•
2415915	COD (Chemical Oxygen Demand)	200 - 15,000 mg/L	Reactor Digestion	8000		150		•	•	•	•
2415925	COD (Chemical Oxygen Demand)	200 - 15,000 mg/L	Reactor Digestion	8000		25		•	•	•	•
2565025	Chemical Oxygen Demand, Mercury-Free	3 - 150 mg/L	Reactor Digestion	8000		25		•	•	•	•
2565125	Chemical Oxygen Demand, Mercury-Free	20 - 1,500 mg/L	Reactor Digestion	8000		25		•	•	•	•
2565115	Chemical Oxygen Demand, Mercury-Free	20 - 1,500 mg/L	Reactor Digestion	8000		150		•	•	•	•
2834325	Chemical Oxygen Demand, Mercury-Free	200 - 15,000 mg/L	Reactor Digestion	8000		25		•	•	•	•
2623415	COD (Chemical Oxygen Demand)	30 - 1,000 mg/L	Manganese III Reactor Digestion	10067		150		•	•	•	•
2623425	COD (Chemical Oxygen Demand)	30 - 1000 mg/L	Manganese III Reactor Digestion	10067		25		•	•	•	•
2183825	Glycol	0 - 150 mg/L				25					
2605345	Nitrate	0.2 - 30.0 mg/L NO <sub>3</sub> -N	Chromotropic Acid	10020	30749	50		•	•	•	•
2608345	Nitrite	0.003 - 0.500 mg/L NO <sub>2</sub> -N	Diazotization	10019	2340249	50		•	•	•	•
2604945	Nitrogen	0.2 - 25.0 mg/L	Titanium Trichloride Reduction			25 - 50		•	•	•	•
2672245	Nitrogen, total	0.5 - 25.0 mg/L N	Persulfate Digestion	10071	189149, 15349, 2406549	25 - 50		•	•	•	•
2714100	Nitrogen, total	2 - 150 mg/L N	Persulfate Digestion	10072	15349, 2406549	25 - 50		•	•	•	•
2742545	Phosphate, ortho	0.06 - 5.00 mg/L PO <sub>4</sub>	Ascorbic Acid	8048	2109210	25 - 50		•	•	•	•
2742645	Phosphate, total	0.06 - 3.50 mg/L PO <sub>4</sub>	Ascorbic Acid	8190	2109210	25 - 50		•	•	•	•
2742745	Phosphate, ortho + total	0.06 - 5.00 mg/L PO <sub>4</sub>	Ascorbic Acid	8180	2109210	25 - 50		•	•	•	•
2767245	Phosphate, total	1.0 - 100 mg/L PO <sub>4</sub>	Molybdovanadate	10127	256949	25 - 50		•	•	•	•
2767345	Phosphate, ortho	1.0 - 100.0 mg/L PO <sub>4</sub>	Molybdovanadate	8114	256949	25 - 50		•	•	•	•
2760345	TOC (Total Organic Carbon)	0.3 - 20.0 mg/L	Direct	10129		25 - 50		•	•	•	•
2760445	TOC (Total Organic Carbon)	100 - 700 mg/L	Direct	10128		25 - 50		•	•	•	•
2815945	TOC (Total Organic Carbon)	15 - 150 mg/L	Direct	10173		25 - 50		•	•	•	•

## Learn More

\*Subject to change without notice. Part numbers may vary by country.



# The Swifttest Dispenser



## The right amount of DPD with the Swifttest

The Swifttest is a powder dispenser that releases the correct amount of DPD (N,N-diethyl-p-phenylenediamine) into 10 mL samples at the press of a button.

The dispenser contains enough reagent for approximately 250 chlorine tests (free or total chlorine). A practical and attractively priced alternative, the Swifttest provides fast, easy reagent addition. Swifttest is ideal for laboratories with high sample throughput, and for analysis in the field. No need to open powder pillows, resulting in less packaging waste.

The handle of the Swifttest dispenser is color-coded for easy parameter recognition. And Hach DPD reagents contain no boric acid!

### Technical Specifications\*

Prod. No.	Parameter	Range	Method Name	Method Number	Quality Control	Number of tests	DR300	DR900	DR1900	DR3900	DR6000
2802300	Chlorine, Free	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8021	1426810, 2630020	Approximately 250	•	•	•	•	•
2105560**	Chlorine, Free	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8021	1426810, 2630020	Approximately 250	•	•	•	•	•
2802400	Chlorine, Total	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8167	1426810, 2630020	Approximately 250	•	•	•	•	•
2105660**	Chlorine, Total	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8167	1426810, 2630020	Approximately 250	•	•	•	•	•

\*Subject to change without notice.

\*\*Refill Vial

Learn More





# Accuvacs



## Analysis... with no pipetting!

Just snap, fill, and read. No need to measure sample or reagents. The secret of the Accuvac® is the vacuum-sealed glass cuvette which contains a pre-measured amount of reagent.

The test is carried out by immersing the tip of the Accuvac in the sample, then breaking it by applying moderate pressure or using the snapper (part number 2405200). The vacuum draws the sample into the cuvette, simultaneously producing thorough mixing. The resulting color is measured visually or photometrically.

### Overview Accuvacs\*

Prod. No.	Parameter	Range	Method Name	Method Number	Quality Control	Number of tests	DR300	DR900	DR1900	DR3900	DR6000
2502025	Free Chlorine, Chlorine Dioxide	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8021	1426810, 2630020	25	•	•	•	•	•
2503025	Total Chlorine, Bromine, Iodine	0.02 - 2.00 mg/L Cl <sub>2</sub>	DPD	8167 Chlorine	2630020	25	•	•	•	•	•
2527025	Fluoride	0.02 - 2.00 mg/L F <sup>-</sup>	SPADNS 2	10225	29153	25		•	•	•	•
2510025	Iron	0.012 - 1.800 mg/L Fe	TPTZ	8112	1417542	25		•	•	•	•
2515025	Dissolved Oxygen	0.3 - 15.0 mg/L O <sub>2</sub>	HRDO	8166		25	•	•	•	•	•
2516025	Ozone	0.01 - 0.25 mg/L O <sub>3</sub>	Indigo	8311		25	•	•	•	•	•
2517025	Ozone	0.01 - 0.75 mg/L O <sub>3</sub>	Indigo	8311		25	•	•	•	•	•
2518025	Ozone	0.01 - 1.50 mg/L O <sub>3</sub>	Indigo	8311		25		•	•	•	•
2508025	Phosphate, Reactive	0.02 - 2.50 mg/L PO <sub>4</sub>	Ascorbic Acid	8048	256949	25	•	•	•	•	•

\*Subject to change without notice.

Visit [hach.com](http://hach.com) to learn more.

### Learn More



# Hach Standard Solutions



**Single Parameter Standards**



**Mixed Parameter Quality Control Standards**



**SpecV Gel Secondary Standard Kits**

## Assure confidence in results

Stop questioning the results of laboratory tests. Regular use of standard solutions can ensure laboratory process control, increase analyst confidence, and help provide evidence of performance to inspectors, regulators, and clients.

## What are Standards?

A standard solution can be used in place of a sample because it contains a known concentration of chemicals or analytes. The analyst can run through a testing process knowing what the final value should be. Standards can be used to establish calibration curves, to determine matrix interferences using standard additions, for control charting and troubleshooting.

## Why use Standards?

When a value is questioned, troubleshooting with standards can quickly pinpoint if, and where, there is a problem. Whether a problem is suspected in the reagents, procedure, instrument, or the analyst, the cause of an inaccurate value can be determined and resolved—saving time and money. Regular use of standards can verify all aspects of a system, and alert an analyst to small problems before the entire process gets out of control.

## Three Types of Standards

### Single Parameter Standards

Available in a variety of analytes and concentrations, including Voluette and PourRite Ampule standards to support standard additions procedures for proof of accuracy.

### Mixed Parameter Quality Control Standards

Packaged for specific applications and formulated to match the ranges of Hach Methods, so no dilution is necessary.

### SpecV Standards

Each set of SpecV standards contains four vials filled with gels that simulate the test color at various concentrations. These standards provide a quick and easy way to confirm that instruments are operating properly. Standards are available for several popular methods.

## Technical Support

Hach Company offers technical expertise on [www.hach.com](http://www.hach.com) and through our technical consulting team. We will help you understand the best use of standards and how to develop a quality assurance program for your laboratory. Visit our website or call our technical consulting staff with questions.

**Learn More**



# Single Parameter Standards

## Technical Specifications\*

Prod. No.	Parameter	Concentration	Quantity	Prod. No.	Parameter	Concentration	Quantity
212132	Acidity	0.500 N	100 mL	2374820	Lead	10 mg/L	25 mL
1427810	Alkalinity	0.5 N (25000 mg/L as CaCO <sub>3</sub> )	16 x 10 mL ampules	1261742		100 mg/L	100 mL
2305842	Aluminium	10 mg/L	100 mL	2605820		10 mg/L	20 x 2 mL ampules
1417442		100 mg/L	100 mL	2112820	Manganese	25 mg/L	20 x 2 mL ampules
1457142	Arsenic	1000 mg/L	100 mL	1279142		1000 mg/L	100 mL
1461142	Barium	1000 mg/L	100 mL	1418742	Molybdenum	10 mg/L	100 mL
2141342	Benzotriazole	500 mg/L	100 mL	1418642		1000 mg/L	100 mL
1486510	BOD	300 mg/L	16 x 10 mL ampules	1417642	Nickel	1000 mg/L	100 mL
1486610		3000 mg/L	16 x 10 mL ampules	2340249	Nitrite	250 mg/L NO <sub>2</sub> -N	500 mL
191442	Boron	1000 mg/L	100 mL	189149		1.00 mg/L NH <sub>3</sub> -N	500 mL
1402442	Cadmium	100 mg/L	100 mL	15349		10.0 mg/L NH <sub>3</sub> -N	500 mL
2305442		10.00 mg/L ± 0.14 mg/L Ca <sup>2+</sup>	100 mL	1479120		50 mg/L NH <sub>3</sub> -N	20 x 2 mL ampules
4457649		100 mg/L ± 1 mg/L Ca <sup>2+</sup>	500 mL	1479110	Nitrogen-Ammonia	50 mg/L NH <sub>3</sub> -N	16 x 10 mL ampules
2240349	Calcium	1000 mg/L ± 8 mg/L Ca <sup>2+</sup>	500 mL	2406549		100 mg/L NH <sub>3</sub> -N	500 mL
12153		1000 mg/L CaCO <sub>3</sub>	1000 mL	2128410		150 mg/L NH <sub>3</sub> -N	16 x 10 mL ampules
218710		10000 mg/L	16 x 10 mL ampules	2354153		1000 mg/L NH <sub>3</sub> -N	1 L
2370853		100 mg/L ± 1 mg/L Cl <sup>-</sup>	1 L	204649		1.00 mg/L NO <sub>3</sub> -N	500 mL
18349	Chloride	1000 mg/L ± 10 mg/L Cl <sup>-</sup>	500 mL	30749		10 mg/L NO <sub>3</sub> -N	500 mL
1425010		12500 mg/L Cl <sup>-</sup>	16 x 10 mL ampules	2415132	Nitrogen-Nitrate	15 mg/L NO <sub>3</sub> -N	100 mL
2630020		25 - 30 mg/L Cl <sub>2</sub>	20 x 2 mL ampules	194749		100 mg/L NO <sub>3</sub> -N	500 mL
1426820	Chlorine	50 - 75 mg/L Cl <sub>2</sub>	20 x 2 mL ampules	1426010		500 mg/L NO <sub>3</sub> -N	16 x 10 mL ampules
1426810		50 - 75 mg/L Cl <sub>2</sub>	16 x 10 mL ampules	1279249		1000 mg/L NO <sub>3</sub> -N	500 mL
2605620		5 mg/L	2 mL	256949		1 mg/L PO <sub>4</sub>	500 mL
1425610	Chromium, hexavalent	12.5 mg/L	10 mL	1424342		15 mg/L PO <sub>4</sub>	100 mL
81042H		50 mg/L	100 mL	1436716		30 mg/L PO <sub>4</sub>	946 mL
1466442		1000 mg/L	100 mL	17110	Phosphorus	50 mg/L PO <sub>4</sub>	16 x 10 mL ampules
1415142	Chromium, trivalent	50 mg/L	100 mL	17149		50 mg/L PO <sub>4</sub>	500 mL
2150342	Cobalt	1000 mg/L	100 mL	1436832		100 mg/L PO <sub>4</sub>	100 mL
1218629		300 mg/L O <sub>2</sub>	200 mL	1424210		500 mg/L PO <sub>4</sub>	16 x 10 mL ampules
1218649		300 mg/L O <sub>2</sub>	500 mL	1424232		500 mg/L PO <sub>4</sub>	100 mL
2672629	COD	800 mg/L O <sub>2</sub>	200 mL	2109210	Phosphorus	25 mg/L	16 x 10 mL ampules
2253929		1000 mg/L O <sub>2</sub>	200 mL	2321142		1000 mg/L	100 mL
2602853		15 Pt-Co units	1 L	2351749	Potassium	100 mg/L	500 mL
141410	Color	500 Pt-Co units	16 x 10 mL ampules	1479010		250 mg/L	16 x 10 mL ampules
141453		500 Pt-Co units	1 L	110649		1 mg/L SiO <sub>2</sub>	500 mL
12932		10 mg/L	100 mL	140349	Silica	10 mg/L SiO <sub>2</sub>	500 mL
12842	Copper	100 mg/L	100 mL	111729		50 mg/L SiO <sub>2</sub>	200 mL
259342		1000 mg/L	100 mL	19449		1000 mg/L	500 mL
1427110	Detergent as LAS	60 mg/L	16 x 10 mL ampules	1461342	Silver	1000 mg/L	100 mL
40502		0.2 mg/L	500 mL	257849		50 mg/L SO <sub>4</sub> <sup>2-</sup>	500 mL
40505		0.5 mg/L	500 mL	89149	Sulfate	100 mg/L SO <sub>4</sub> <sup>2-</sup>	500 mL
40508		0.8 mg/L	500 mL	2175749		1000 mg/L SO <sub>4</sub> <sup>2-</sup>	500 mL
29149		1.00 mg/L	500 mL	1425249		2500 mg/L SO <sub>4</sub> <sup>2-</sup>	500 mL
29153	Fluoride	1.00 mg/L	1 L	2408449	Sulfite	15 mg/L SO <sub>3</sub> <sup>2-</sup>	500 mL
40512		1.2 mg/L	500 mL	2267410		5000 mg/L SO <sub>3</sub> <sup>2-</sup>	16 x 10 mL ampules
40515		1.5 mg/L	500 mL	1427010	Volatile Acids	62500 mg/L	16 x 10 mL ampules
40520		2.00 mg/L	500 mL	1424610		25 mg/L	16 x 10 mL ampules
35949		10.0 mg/L	500 mL	237842	Zinc	100 mg/L	100 mL
23249		100 mg/L	500 mL	1417742		1000 mg/L	100 mL
2257310	Formaldehyde	4000 mg/L	16 x 10 mL ampules				
2058016	Hardness	0.50 mg/L	946 mL				
47949		20 gpg (340 mg/L)	500 mL				
13949		1 mg/L	500 mL				
14049		10 mg/L	500 mL				
1425310	Iron	25 mg/L	16 x 10 mL ampules				
1417542		100 mg/L Fe	100 mL				
227142		1000 mg/L	100 mL				

Additional Standards are available on [hach.com](http://hach.com)

\*Subject to change without notice.

\*Part numbers may vary by country.



## Mixed Parameter Quality Control Standards

Technical Specifications*			
Prod. No.	Parameter	Concentration	Volume
2833749	Copper Iron Manganese	1.0 mg/L Cu 0.3 mg/L Fe 0.1 mg/L Mn	500 mL
2833649	Copper Iron Manganese	2.5 mg/L Cu 1.5 mg/L Fe 5 mg/L Mn	500 mL
2833049	Fluoride Nitrate Phosphate Sulfate	1 mg/L F <sup>-</sup> 2 mg/L NO <sub>3</sub> <sup>-</sup> -N 2 mg/L PO <sub>4</sub> <sup>3-</sup> 50 mg/L SO <sub>4</sub> <sup>2-</sup>	500 mL
2833449	Total Hardness, LR Calcium Hardness	100 mg/L as CaCO <sub>3</sub> 50 mg/L as CaCO <sub>3</sub>	500 mL
2833349	Total Hardness, HR Calcium Hardness	1000 mg/L as CaCO <sub>3</sub> 500 mg/L as CaCO <sub>3</sub>	500 mL
2833149	Ammonia Nitrate Phosphate COD Sulfate TOC	15 mg/L NH <sub>3</sub> -N 10 mg/L NO <sub>3</sub> <sup>-</sup> -N 10 mg/L PO <sub>4</sub> <sup>3-</sup> 500 mg/L COD 400 mg/L SO <sub>4</sub> <sup>2-</sup> 161 mg/L TOC	500 mL
2833249	Ammonia Nitrate Phosphate COD Sulfate TOC	2 mg/L NH <sub>3</sub> -N 4 mg/L NO <sub>3</sub> <sup>-</sup> -N 2 mg/L PO <sub>4</sub> <sup>3-</sup> 25 mg/L COD 50 mg/L SO <sub>4</sub> <sup>2-</sup> 8 mg/L TOC	500 mL
2833510	BOD COD TOC	396 mg/L BOD 613 mg/L COD 242 mg/L TOC	16 x 10 mL Voluette Ampules

\*Subject to change without notice.

## Spec<sup>✓</sup> Gel Secondary Standard Kits

Technical Specifications*			
Prod. No.	Parameter	Concentration	Quantity
2635300	Chlorine	0 - 2.0 mg/L Cl <sub>2</sub>	Set of 4 Vials
2980500	Chlorine, DPD MR	0 - 4.0 mg/L Cl <sub>2</sub>	Set of 4 Vials
2893300	Chlorine, DPD HR	0 - 8.0 mg/L Cl <sub>2</sub>	Set of 4 Vials
2712500	Fluoride	0 - 2.00 mg/L F <sup>-</sup>	Set of 4 Vials
2507500	Monochloramine Free Ammonia	0.04 - 4.50 mg/L Cl <sub>2</sub> 0.02 - 0.50 mg/L NH <sub>3</sub> -N	Set of 4 Vials
2708000	Ozone, mid-range	0 - 0.75 mg/L O <sub>3</sub>	Set of 4 vials

\*Subject to change without notice.

# Turbidity Standard Solutions

## Ready-to-use primary standards for calibration and/or verification

Stabcal® Stabilized Formazin Standards are true formazin dilutions developed for use in any turbidimeter. With proprietary manufacturing technology, Hach prepares Stabcal standards in precise concentrations for conventional turbidimeters. Stabcal standards are equivalent in performance to formazin primary standards, but require no special preparation, saving precious time.



### Overview Stabcal Standards\*

#### All Turbidimeters

2659742	Stabcal Turbidity Standard, <0.1 NTU, 100 mL
2659749	Stabcal Turbidity Standard, <0.1 NTU, 500 mL
2659753	Stabcal Turbidity Standard, <0.1 NTU, 1000 mL
2723342	Stabcal Turbidity Standard, 0.10 NTU, 100 mL
2723353	Stabcal Turbidity Standard, 0.10 NTU, 1000 mL
2697942	Stabcal Turbidity Standard, 0.30 NTU, 100 mL
2697953	Stabcal Turbidity Standard, 0.30 NTU, 1000 mL
2698042	Stabcal Turbidity Standard, 0.50 NTU, 100 mL
2698049	Stabcal Turbidity Standard, 0.5 NTU, 500 mL
2659842	Stabcal Turbidity Standard 1.0 NTU, 100 mL
2659849	Stabcal Turbidity Standard 1.0 NTU, 500 mL
2659853	Stabcal Turbidity Standard, 1.0 NTU, 1000 mL
2659942	Stabcal Turbidity Standard, 10.0 NTU, 100 mL
2659949	Stabcal Turbidity Standard, 10.0 NTU, 500 mL
2659953	Stabcal Turbidity Standard, 10.0 NTU, 1000 mL
2660142	Stabcal Turbidity Standard, 20 NTU, 100 mL
2660149	Stabcal Turbidity Standard, 20 NTU, 500 mL
2660153	Stabcal Turbidity Standard, 20 NTU, 1000 mL
2746353	Stabcal Turbidity Standard, 40.0 NTU, 1000 mL
2746356	Stabcal Turbidity Standard, 40 NTU, 3.78 L
2660242	Stabcal Turbidity Standard, 100 NTU, 100 mL
2660249	Stabcal Turbidity Standard, 100 NTU, 500 mL
2660253	Stabcal Turbidity Standard, 100 NTU, 1000 mL
2660442	Stabcal Turbidity Standard, 200 NTU, 100 mL
2660449	Stabcal Turbidity Standard, 200 NTU, 500 mL
2660453	Stabcal Turbidity Standard, 200 NTU, 1000 mL
2660542	Stabcal Turbidity Standard, 800 NTU, 100 mL
2660549	Stabcal Turbidity Standard, 800 NTU, 500 mL
2660553	Stabcal Turbidity Standard, 800 NTU, 1000 mL
2660642	Stabcal Turbidity Standard, 1000 NTU, 1000 mL
2660653	Stabcal Turbidity Standard, 1000 NTU, 100 mL
2660649	Stabcal Turbidity Standard, 1000 NTU, 500 mL
246142	Formazin Turbidity Standard, 4000 NTU, 100 mL
246149	Formazin Turbidity Standard, 4000 NTU, 500 mL
2584202	Stabcal Turbidity Standard, 7500 NTU, Sealed Vial

#### 2100Q

2971205	Stabcal Calibration Kit, 10/20/100/800 NTU, Sealed Vials
2971210	Stabcal Calibration Kit, 10/20/100/800 NTU, 100 mL Bottles
2971200	Stabcal Calibration Kit, 10/20/100/800 NTU, 500 mL Bottles

#### TL2300 & TL2310

2662105	Stabcal Calibration Kit, <0.1/20/200/1000/4000 NTU, Sealed Vials
2662110	Stabcal Calibration Kit, <0.1/20/200/1000/4000 NTU, 100 mL Bottles
2662100	Stabcal Calibration Kit, <0.1/20/200/1000/4000 NTU, 500 mL Bottles

#### TL2350 & TL2360

2659505	Stabcal Calibration Kit, <0.1/20/200/1000/4000/7500 NTU, Sealed Vials
2659510	Stabcal Calibration Kit, <0.1/20/200/1000/4000/7500 NTU, 100 mL Bottles
2659500	Stabcal Calibration Kit, <0.1/20/200/1000/4000/7500 NTU, 500 mL Bottles

#### TU5 Series

LZZ003	Stabcal Verification Vial, 1 NTU, with RFID
LZZ004	Stabcal Verification Vial, 1 NTU, without RFID
LZY877	Stabcal Verification Vial, 10 NTU, with RFID
LZY878	Stabcal Verification Vial, 10 NTU, without RFID
LZY837	Stabcal Calibration Vial, 20 NTU, with RFID
LZY899	Stabcal Calibration Vial, 20 NTU, without RFID
LZY838	Stabcal Calibration Vial, 600 NTU, with RFID
LZY900	Stabcal Calibration Vial, 600 NTU, without RFID
LZZ005	Stabcal Primary Turbidity Standards Set, 1/10/20 NTU, with RFID
LZZ006	Stabcal Primary Turbidity Standards Set, 1/10/20 NTU, without RFID
LZY835	Stabcal Primary Turbidity Standards Kit, 10/20/600 NTU, with RFID
LZY901	Glass Rod Secondary Turbidity Standard <0.1 NTU

#### Verification Kits

2714600	Stabcal ULR Verification Kit, 0.1/0.3/0.5/1.0 NTU, 100 mL Bottles
2464105	Gelex Secondary Turbidity Verification Kit for 2100Q, Sealed Vials
2589200	Gelex Secondary Turbidity Verification Kit for TL2300, Sealed Vials
2589000	Gelex Secondary Turbidity Verification Kit for TL2350/TL2360, Sealed Vials
2620000	Gelex Secondary Turbidity Verification Kit for TL2310, Sealed Vials

See also 2100Q, TL23 and TU5200 Series turbidimeter pages.

\*Subject to change without notice.

### Learn More



# Multi-Parameter Test Kits

## Simplify your testing with Hach Test Kits!

Test kits are convenient & portable - rugged for field testing with user-friendly, pre-measured reagents. Tests for a wide range of parameters in water are available. On-Site or Field Analysis eliminate the need for sample transportation to a Lab and reduce the need for expensive laboratory analyses. Visual, colorimetric, and titration (Drop Count and Digital Titration) methods alone and in combination are available in test kits.



### Technical Specifications\*

Prod. No.	Description	Measurement Technology	Parameter	Range
243002	Nine-Parameter Aquaculture Test Kit, Model FF-1A	Color Disc, Drop Count Titration	Alkalinity Ammonia Carbon Dioxide Chloride Dissolved Oxygen Total Hardness Nitrite pH Supersaturation	0 - 100 & 0 - 400 mg/L CaCO <sub>3</sub> 0 - mg/L NH <sub>3</sub> 0 - 100 mg/L CO <sub>2</sub> 0 - 100 mg/L Cl <sub>2</sub> 0 - 150 & 0 - 600 mg/L O <sub>2</sub> 0 - 20 gpg CaCO <sub>3</sub> 0.0 - 0.4 mg/L NO <sub>2</sub> <sup>-</sup> 4 - 10 pH units --
243003	Saltwater Aquaculture Test Kit, Model FF-3	Digital Titrator, Color Disc, Drop Count Titration	Acidity Alkalinity Ammonia Carbon Dioxide Dissolved Oxygen Hardness Nitrite pH Salinity Temperature	100 - 400 mg/L CaCO <sub>3</sub> 0 - 500 mg/L CaCO <sub>3</sub> 0 - 2 mg/L NH <sub>3</sub> 10 - 100 mg/L CO <sub>2</sub> 0 - 10 mg/L O <sub>2</sub> 100 - 4000 mg/L CaCO <sub>3</sub> 0.0 - 0.4 mg/L NO <sub>2</sub> <sup>-</sup> 4 - 10 pH units 0 - 100 ppt -10 - 110 °C (1 - 220 °F)
243001	Ten-Parameter Aquaculture Test Kit, Model FF-2	Digital Titrator, Color Disc	Acidity Alkalinity Ammonia Carbon Dioxide Chloride Dissolved Oxygen Hardness Nitrite pH Temperature	100 - 4000 mg/L CaCO <sub>3</sub> 100 - 4000 mg/L CaCO <sub>3</sub> 0.1 - 3 mg/L NH <sub>3</sub> 10 - 100 mg/L CO <sub>2</sub> 10 - 100 mg/L Cl <sub>2</sub> 0 - 10 mg/L O <sub>2</sub> 100 - 4000 mg/L CaCO <sub>3</sub> 0.0 - 0.4 mg/L NO <sub>2</sub> <sup>-</sup> 4 - 10 pH units -10 - 110 °C (1 - 220 °F)
2882200	Nitrification Control Test Kit	Colorimeter	Free Ammonia Monochloramine Nitrite Total Chlorine (LR) Total Chlorine (HR)	0.02 - 0.50 mg/L NH <sub>3</sub> -N 0.04 - 4.50 mg/L Cl <sub>2</sub> 0 - 0.350 mg/L NO <sub>2</sub> <sup>-</sup> -N 0 - 2.00 mg/L Cl <sub>2</sub> 0.1 - 10.0 mg/L Cl <sub>2</sub>



**Technical Specifications\***

Prod. No.	Description	Measurement Technology	Parameter	Range
2559833	Surface Water Test Kit	Color Disc, Drop Count Titration	Ammonia Chlorine Free & Total Nitrate Dissolved Oxygen pH Phosphate Phosphorus	0.0 - 2.4 mg/L NH <sub>3</sub> 0 - 3.4 mg/L Cl <sub>2</sub> 0 - 40 mg/L NO <sub>3</sub> 0.2 - 4 & 1 - 20 mg/L O <sub>2</sub> 0 - 14 pH units 0 - 4.4 mg/L PO <sub>4</sub> 0.02 - 1 & 0.1 - 5 & 1 - 40 mg/L PO <sub>4</sub> -P
188703	Wastewater Treatment Plant Laboratory, Model STPL-WRT	Color Disc, Drop Count Titration	Total Chlorine Dissolved Oxygen pH	0 - 3.4 mg/L Cl <sub>2</sub> 1 - 10 mg/L O <sub>2</sub> 0 - 14 pH units
2481300	Storm Water Test Kit, Model SW-1	Color Disc, Drop Count Titration	Total Chlorine Copper Detergents pH Phenols	0 - 3.4 mg/L Cl <sub>2</sub> 0 - 4 mg/L Cu 0 - 1.2 mg/L 0 - 14 pH units 0 - 4 & 0.02 - 1 mg/L
2350700	Professional Boiler and Cooling Water Test Kit, Model PBC-DT	Digital Titrator, Color Disc	Alkalinity Chloride Chlorine Hardness Iron Nitrite pH Phosphate Silica Sulfite	1 - 4000 mg/L CaCO <sub>3</sub> 10 - 8000 mg/L Cl <sup>-</sup> 0 - 3.4 mg/L Cl <sub>2</sub> 10 - 4000 mg/L CaCO <sub>3</sub> 0 - 0.2 & 0 - 2 mg/L Fe 0 - 80 & 40 - 2000 mg/L NO <sub>2</sub> 5.6 - 8.4 & 7.4 - 9.6 pH units 0 - 4.4 & 0 - 40 mg/L PO <sub>4</sub> 0 - 30 or 20 - 600 mg/L SiO <sub>2</sub> 40 - 800 mg/L SO <sub>3</sub> <sup>2-</sup>
2315001	Pool Master Test Kit, Model STPL-WRT	Color Disc, Drop Count Titration	Alkalinity Chlorine Free & Total Cyanuric Acid pH Calcium Hardness	0 - 400 mg/L CaCO <sub>3</sub> 0 - 3.4 mg/L Cl <sub>2</sub> 20 - 100 mg/L CN <sup>-</sup> 6.6 - 8.4 pH units 20 - 400 mg/L CaCO <sub>3</sub>
183700	Hardness, Iron, and pH Test Kit, Models HA-62	Color Disc, Drop Count Titration	Hardness Iron pH	1 - 20 gpg CaCO <sub>3</sub> 0 - 4 mg/L Fe 6.6 - 8.4 pH units
183701	Hardness, Iron, and pH Test Kit, Models HA-62A	Color Disc, Drop Count Titration	Hardness Iron pH	1 - 20 gpg CaCO <sub>3</sub> 0 - 7 mg/L Fe 6.6 - 8.4 pH units
183702	Hardness, Iron, and pH Test Kit, Models HA-62B	Color Disc, Drop Count Titration	Hardness Iron pH	1 - 20 gpg CaCO <sub>3</sub> 0 - 7 mg/L Fe 4 - 10 pH units
202300	Hardness and Iron Test Kit, Model HA-77	Color Disc, Drop Count Titration	Hardness Iron	1 - 20 gpg CaCO <sub>3</sub> 0 - 4 mg/L Fe
146300	Iron and Manganese Test Kit, Model IR-20	Color Disc	Iron Manganese	0 - 4 mg/L Fe 0.1 - 3.0 mg/L Mn
256200	Iron and pH Test Kit, Model IR-23	Color Disc	Iron pH	0 - 7 mg/L Fe 4 - 10 pH units
1411100	Free & Total Chlorine and pH Test Kit, Model CN-67	Color Disc	Chlorine Free & Total pH	0.1 - 10 mg/L Cl <sub>2</sub> 6.6 - 8.4 pH units
223002	Chlorine, Hardness, Iron, and pH Test Kit, Model CN39-WR	Color Disc, Drop Count Titration	Total Chlorine Hardness Iron pH	0 - 3.4 mg/L Cl <sub>2</sub> 1 - 20 gpg CaCO <sub>3</sub> 0 - 4 mg/L Fe 4 - 10 pH units

Please visit [hach.com](http://hach.com) for further Test Kit details.

\*Subject to change without notice.

**Learn More**

# Single Parameter Test Kits



Single parameter test kits include simple yet effective methods for analyzing key parameters such as pH, chlorine levels, hardness, nitrate, nitrite, ammonia, and more. With user-friendly testing procedures and reliable results, Hach water testing kits empower users to make informed decisions about water safety and quality. Premeasured reagents save time and money, and kits contain everything you need for testing anywhere.

**Learn More**



## Technical Specifications\*

Prod. No.	Description	Measurement Technology	Parameter	Range
2063700	Alkalinity Test Kit, Model AL-DT	Digital Titrator	Alkalinity - (P) & Total (MO)	10 - 4,000 mg/L CaCO <sub>3</sub>
2444301	Alkalinity Test Kit, Model AL-AP	Drop Count Titration	Alkalinity - (P) & Total (MO)	5 - 100 mg/L CaCO <sub>3</sub> / 20 - 400 mg/L CaCO <sub>3</sub>
2064100	Carbon Dioxide Test Kit, Model CA-DT	Digital Titrator	Carbon Dioxide	10 - 1,000 mg/L CO <sub>2</sub>
143601	Carbon Dioxide Test Kit, Model CA-23	Drop Count Titration	Carbon Dioxide	1.25 - 25 mg/L CO <sub>2</sub> / 2 - 40 mg/L CO <sub>2</sub> / 5 - 100 mg/L CO <sub>2</sub>
34251000	ULR Free Chlorine Fluorescence Test Kit, 2-100 µg/L (ppb), 100 Tests	Fluorometer	Free Chlorine	2 - 100 µg/L (ppb) Cl <sub>2</sub> free
34252000	ULR Total Chlorine Fluorescence Test Kit, 3-100 µg/L (ppb), 100 Tests	Fluorometer	Total Chlorine	3 - 100 µg/L (ppb) Cl <sub>2</sub> total
1454200	Free & Total Chlorine Test Kit, Model CN-70	Color Disc	Chlorine Free & Total, LR	0.02 - 0.68 mg/L Cl <sub>2</sub> / 0 - 3.4 mg/L Cl <sub>2</sub>
2129000	Free & Total Chlorine Test Kit, Model CN-80	Color Disc	Chlorine Free & Total, LR	0 - 0.68 mg/L Cl <sub>2</sub> / 0 - 3.4 mg/L Cl <sub>2</sub>
223101	Free & Total Chlorine Test Kit, Model CN-66	Color Disc	Chlorine Free & Total, LR	0 - 3.4 mg/L Cl <sub>2</sub>
223102	Free Chlorine Test Kit, Model CN-66F	Color Disc	Free Chlorine, LR	0 - 3.4 mg/L Cl <sub>2</sub>
223103	Total Chlorine Test Kit, Model CN-66T	Color Disc	Total Chlorine, LR	0 - 3.4 mg/L Cl <sub>2</sub>
2444400	Total Chlorine Test Kit, Model CN-21P	Drop Count Titration	Total Chlorine, MR & HR	10 - 200 mg/L Cl <sub>2</sub>
2194100	Copper Test Kit, Model CU-6	Color Disc	Copper, Dissolved & Total	0 - 4 mg/L Cu
146900	Dissolved Oxygen Test Kit	Drop Count Titration	Dissolved Oxygen (DO)	0.2 - 4.0 mg/L & 1 - 20 mg/L O <sub>2</sub>
145201	Total Hardness Test Kit, Model HA-71A	Drop Count Titration	Hardness, total - As CaCO <sub>3</sub>	1 - 20 mg/L & 17 - 342 mg/L CaCO <sub>3</sub>
145300	Total Hardness Test Kit, Model 5-B	Drop Count Titration	Hardness, total - As CaCO <sub>3</sub>	1 - 30 gpg
145401	Total Hardness Test Kit, Model 5-EP MG-L	Drop Count Titration	Hardness, total - As CaCO <sub>3</sub>	20 - 400 mg/L CaCO <sub>3</sub>
223801	Hydrogen Sulfide Test Kit, Model HS-WR	Color Disc	Hydrogen Sulfide	0.01 - 0.55 & 0.05 - 2.25 & 0.25 - 11.25 mg/L S <sup>2-</sup>
2537800	Hydrogen Sulfide Test Kit, Model HS-C	Color Chart	Hydrogen Sulfide	0 - 5 mg/L H <sub>2</sub> S
146400	Iron Test Kit, Model IR-18	Color Disc	Iron, Dissolved, MR	0 - 4 mg/L Fe
146401	Iron Test Kit, Model IR-18B	Color Disc	Iron, Dissolved, MR	0.25 - 7 mg/L Fe
146500	Iron Test Kit, Model IR-18A	Color Disc	Iron, Dissolved, MR	0.02 - 1.00 mg/L Fe
146700	Manganese Test Kit, Model MN-5	Color Disc	Manganese - As Mn	0 - 3.0 mg/L Mn
2350800	Manganese Test Kit, Model MN-PAN	Color Disc	Manganese - As Mn	0 - 0.70 mg/L Mn
2359300	Molybdate Test Kit, Model MO-LR	Color Disc	Molybdate - as Molybdenum	0 - 3.0 mg/L Mo
2428700	Nitrogen-Ammonia Test Kit, Model NI-SA	Color Disc	Nitrogen-Ammonia, MR	0 - 2.4 mg/L NH <sub>3</sub> -N
1416100	Nitrogen-Nitrate Test Kit, Model NI-14	Color Disc	Nitrogen-Nitrate	0 - 10 mg/L NO <sub>3</sub> -N
146803	Nitrogen-Nitrate Test Kit, Model NI-11	Color Disc	Nitrogen-Nitrate	0 - 40 mg/L NO <sub>3</sub> -N
2518050	Ozone Test Kit, Model HR-Accuvac	Accuvac®	Ozone - As O <sub>3</sub>	0 - 1.50 mg/L O <sub>3</sub>
2064400	Ozone Test Kit, Model OZ-2	Color Disc	Ozone - As O <sub>3</sub>	0 - 2.2 mg/L O <sub>3</sub>
147006	pH Test Kit, Model 17F	Color Disc	pH, mid range	5.6 - 8.4 pH
147008	pH Test Kit, Model 17H	Color Disc	pH, mid range	6.6 - 8.4 pH
147009	pH Test Kit, Model 17J	Color Disc	pH, mid range	7.4 - 9.6 pH
147011	pH Test Kit, Model 17N	Color Disc	pH, wide range	4 - 10 pH
224800	Orthophosphate Test Kit, Model PO-19	Color Disc	Orthophosphate	0 - 40 mg/L PO <sub>4</sub>
224801	Orthophosphate Test Kit, Model PO-19A	Color Disc	Orthophosphate	0 - 40 mg/L PO <sub>4</sub>
1455400	Silica Test Kit, Model SI-5	Color Disc	Silica, HR	0 - 30 mg/L SiO <sub>2</sub>
34250000	ULR Sulfite Fluorescence Test Kit, 6-500 µg/L (ppb), 100 Tests	Fluorometer	Sulfite	6 - 500 µg/L (ppb) SO <sub>3</sub>

Please visit [hach.com](http://hach.com) for further Test Kit details.

\*Subject to change without notice.

# Test Strips

## Test strips in a variety of parameters.

High-quality Hach chemistry on an easy-to-use test strip. Simply dip the strip in sample and compare with colors printed on the bottle to find a reading. Test strips are accurate, portable, and low-cost. Applications include drinking water, wastewater, pool and spa, industrial process water, and more. Parameters available include chlorine, nitrate and nitrite, hardness, alkalinity, chloride, ammonia, and more. Hach offers a high-value 5 in 1 test strip, which measures free chlorine, total chlorine, hardness, alkalinity, and pH - all on one strip.



### Technical Specifications\*

Prod. No.	Parameter	Range	Units
2744850	Total Alkalinity - Phenolphthalein	0 - 240 mg/L	50 tests
2755325	Ammonia, Nitrogen, Low Range - as $\text{NH}_3\text{-N}$ , for freshwater	0 - 6 ppm	25 tests
2744940	Chloride	30 - 600 mg/L $\text{Cl}^-$	40 tests
2751340	Chloride	300 - 6000 ppm $\text{Cl}^-$	40 tests
2745050	Free and Total Chlorine	0 - 10 mg/L $\text{Cl}_2$	50 tests
2793944	Free and Total Chlorine	0 - 10 mg/L $\text{Cl}_2$	250 tests (individually wrapped)
2890200	Free Chlorine, High Range	0 - 600 mg/L $\text{Cl}_2$	100 tests
2745125	Copper	0 - 3 ppm Cu	25 tests
2745250	Hardness, Total - as $\text{CaCO}_3$	0 - 425 ppm	50 tests
2793828	Hardness, Total - as $\text{CaCO}_3$	0 - 425 ppm	1000 tests (individually wrapped)
2793844	Hardness, Total - as $\text{CaCO}_3$	0 - 425 ppm	250 tests (individually wrapped)
2745325	Iron, medium range	0 - 5 ppm Fe	25 tests
2745425	Nitrate Nitrite	0 - 50 mg/L $\text{NO}_3\text{-N}$ 0 - 3.0 mg/L $\text{NO}_2\text{-N}$	25 tests
2601300	pH	0 - 14 pH units	100 tests
2745650	pH	4 - 9 pH units	50 tests
2751000	pH	7.5 - 14 pH units	100 tests
2757150	Phosphorus, Orthophosphate (reactive) - as $\text{PO}_4$	0 - 50 ppm $\text{PO}_4$	50 tests
2755250	Free Chlorine Total Chlorine Total Hardness Total Alkalinity pH	0 - 10 mg/L $\text{Cl}_2$ free 0 - 10 mg/L $\text{Cl}_2$ total 0 - 25 gpg/0 - 425 mg/L $\text{CaCO}_3$ 0 - 240 mg/L $\text{CaCO}_3$ 6.2 - 8.4 pH units	50 tests

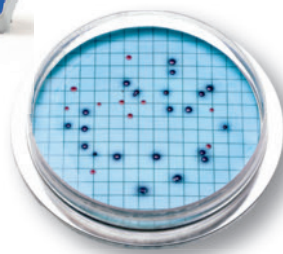
\*Subject to change without notice.

### Learn More





# Microbiological Products



## LuminUltra ATP

LuminUltra ATP microbiological testing solutions provide feedback on contamination sooner for proactive control!

## Most Popular Media

EPA-approved m-ColiBlue24 simultaneously detects total coliforms and E. coli in just 24 hours—no confirmation necessary!

**Learn More**



## Whirl-Pak™ Sampling Bags

These bags feature a white, write-on strip for easy sample identification. Mark bags using an ordinary ballpoint pen, pencil, or felt-tip marker. The Dechlor bag meets National Environmental Laboratory Accreditation Conference (NELAC) standard for sampling wastewater treated with 15 mg/L of chlorination agent. Both bags have 100 mL and 4-oz. fill lines (approximate volume).

Prod. No.	Description
2233199	Bag, Sterile, WhirlPak, 207 mL, 100/pk
2075333	Bag, Sterile, Whirl-Pak with Dechlorinating Agent, 177 mL, 100/pk

## Sterile Sampling Bottle with Dechlorinating Agent

Hach Modified Colitag Sterile 120 mL Sample Bottle



Prod. No.	Description
8888006	Hach Modified Colitag Sterile Sample Bottles, 120 mL, 100/pk

## Sample Vial

Sample vial contains thiosulfate and custody tie. 120 mL sterile, hinged-cap vials meet all EPA requirements for microbiology sampling. Collection, incubation, and accurate reading can all be done in the vial without a transfer step. 100 mL raised fill line. Polypropylene.



Prod. No.	Description
2634001	Sample Vial with Thiosulfate and Custody Tie, 120 mL, 200/pk

## Wire Innoculating Loop

### Prod. No. Description

**2112100** Innoculating Wire Loop, 3" Nichrome V Wire, 1/pk

**2749125** Inoculating Loop, Disposable, 10  $\mu$ L, 10/pk



## Millipore Microfil System Filters & Funnels

Convenient, easy to use system for well-accepted membrane filtration method conforms to international standards: CEN, Standard Methods, WHO. Disposable, stackable, light, recyclable plastic Microfil funnels eliminate autoclaving and minimize waste.

### Prod. No. Description

**2586300** Microfil Funnels, 100 mL, 150/pk



## Microfunnels

These funnels feature an integrated sample container and filter funnel designed to eliminate waste. 2831500 also includes the pad.

### Prod. No. Description

**2831500** Microfunnel with Pad, 50/pk

**2831600** Microfunnel Single-Place Manifold, 1/pk



## Sartorius Biosart 100 Monitor

Sartorius Biosart 100 Monitors are incredibly unique and efficient. By drawing vacuum across the membrane, your sample is quickly and efficiently filtered through the included 0.45  $\mu$ m filter. When you are done filtering, the monitor quickly converts into its own Petri dish, saving you time and money, while eliminating waste. Simply cap the bottom of the monitor, remove the cylinder side tube, add media, and cap the Petri dish.

### Prod. No. Description

**2521101** Sartorius Biosart 100 Monitor, 100 mL, 48/pk



## Long Wave UV Lamp

Mid-size (6 Watt) high intensity, hand-held. Intensity at 15.2 cm (6"), 750  $\mu$ W/cm<sup>2</sup>. Filters: Two 6 x 7.6 cm (2.34 x 3") in snap on/off frame.

Overall dimensions: 37.5 x 8.9 x 6.7 cm (14.8 x 3.5 x 2.3"). UL listed. Meets existing OSHA electrical standards. 352 nm.

### Prod. No. Description

**2184300** Hand Held UV Lamp

## Millipore ez Fit Manifold

EZ-Fit™ Manifold: Designed for Easy Cleaning and Decontamination



- Versatile Filtration Heads: Compatible with both reusable and disposable filtration devices.
- Quick-Fit Connectors: Simplify vacuum tubing connections.
- Low Profile: Ideal for use in laminar flow hoods.
- Biofilm Prevention: The innovative EZ-Fit™ Manifold design eliminates contamination sources that can lead to false positives. All internal areas are easily accessible for efficient cleaning.
- Autoclavable Components: All parts can be autoclaved, and components can be quickly and easily removed without additional tools.
- Integrated Check Valve: Prevents liquid back-flow from the vacuum system.
- 2-Way Valve: Ensures safe handling by preventing accidental contact with the filtration head during operation.

Prod. No.	Description
2586201	Millipore ez Fit Manifold Base, 1-Place, SS, 100 mL, 1/pk

## Filter Holder, Glass, for Vacuum Filtration



Though not as robust as the stainless steel alternative, glass systems provide a longer life than the plastic option. Beaker-style funnel (300 mL) with 47 mm membrane support for filtration of aqueous samples. Fritted borosilicate glass membrane support for even filtration across surface of membrane. Funnel attaches evenly to base via aluminum clamp. Borosilicate glass funnel and base; anodized aluminum clamp; support screen (sintered glass); rubber stopper (No. 8) included. Filter flask sold separately (500 mL, PN 54649)

Prod. No.	Description
234000	Glass Filtration Apparatus

## Polyphenylsulfone Reusable Filters and Funnels



Fully autoclavable for multiple uses, these funnels present the most economical solution for reusable systems.

Prod. No.	Description
1352900	Magnetic Polyphenylsulfone Filter Holder, 47 mm
2254400	Polysulfone Filter Holder

## Millipore Membrane Filters



Prod. No.	Description
2916800	Millipore EZ Pak membranes; white, gridded, 0.45 µm pore size
2936100	Millipore gridded membranes, 0.45 µm, 47 mm, white, gridded, sterile, 150/pk
2936200	Millipore S-Pak type membrane filters, certified for fecal coliform analysis, 0.7 µm, 47 mm, pk/150



## Petri Dishes

### Prod. No. Description

<b>1471799</b>	Polystyrene Petri Dish, with Pad, 100/pk
<b>2936300</b>	Petri Dish with Pad, 47 mm, 150/pk
<b>25248000</b>	EO Sterilized Petri Dish with Pad, 47 mm, 150/pk
<b>1485299</b>	Petri Dish, 9 x 50 mm, 100/pk



## m-ColiBlue24® - EPA Approved

EPA approved m-ColiBlue24 simultaneously detects total coliforms and E. coli in just 24 hours—no confirmation step necessary! And with the lowest published false positive count, you can have full confidence in your results. Glass ampules (2608420), plastic ampules (26084500), 100mL bottles (2608442) of m-ColiBlue24 and agar plates (2805215), afford maximum shelf life and ease of use for pre-measured and prepared media. Use m-ColiBlue24 Broth to accurately monitor and evaluate total coliform and E. coli in drinking water; wastewater; bottled water; beverages; surface, ground, and well water; and ultrapure, chemical processing and pharmaceutical processing waters.

### Prod. No. Description

<b>2608420</b>	Total Coliforms and E. coli mCB24 Broth, Glass Ampules
<b>2608450</b>	Total Coliforms and E. coli mCB24 Broth, Plastic Ampules
<b>2608442</b>	Total Coliforms and E. coli mCB24 Broth, 100 mL Bottle



## Presence-Absence Tests

Presence-absence tests are a convenient way to detect coliforms and E. coli in your water system. Conforms to Standard Methods 9221 D.

### Prod. No. Description

<b>2401650</b>	Presence Absence Test with MUG, 50/pk
<b>32215</b>	Brilliant Green Bile Broth Tubes, 15/pk
<b>2495525</b>	E.coli and total coliforms, 25/pk
<b>2323250</b>	Total Coliforms p-A Broth (sterile bottle), 50/pk



## Paddle Testers (Dipslides) and Total Count Media

Dipslides, or paddle testers, are a versatile platform of products that can test for a variety of microbes including coliforms, yeasts, and molds.

### Prod. No. Description

<b>2610810</b>	Total Aerobic Bacteria/Yeast & Mold, 10/pk Tryptone Glucose Extract Agar/Sabouraud Dextrose Agar
<b>2610910</b>	Total Aerobic Bacteria/Total Coliform Red Bile Agar, 10/pk Tryptic Soy Agar (TSA)/Violet
<b>2619510</b>	Total Aerobic Bacteria/Disinfection Control, 10/pk TSA/DE Neutralizing Agar
<b>2406720</b>	HPC (heterotrophic Plate Count) Agar Tubes, 20/pk
<b>2564325</b>	Tryptic Soy Broth Bottles, 100 mL, 25/pk



## Membrane Filtration Other Prepared Media



Hach's ready-to-use media eliminates measuring, mixing, and autoclaving steps necessary to prepare dehydrated media. Membrane filtration methods enable the isolation and counting of microorganisms by filtering a sample through a membrane and then culturing it on microbial media. This technique is useful for testing large liquid volumes, making it crucial for environmental monitoring and water quality assessment.

Compared to traditional methods, membrane filtration is faster and more efficient, delivering results within 24 hours. Using selective media, specific bacteria can be isolated, providing quantitative data on microbial load. This versatile technique is applicable to various samples, including water, beverages, and pharmaceuticals.

Prod. No.	Description	Application
<b>Agar Products</b>		
<b>2724106</b>	R2A-I-MF Agar, 14 mL, pk/6	For enumeration of heterotrophic bacteria in water, especially potable water
<b>2805215</b>	Prepared agar plates m-ColiBlue24, pk/15	For detection of total coliforms and E. coli
<b>2811715</b>	Prepared agar plates m-EI, pk/15	Detection of Enterococci in recreational water
<b>2811615</b>	Agar plates m-ENDO, pk/15	Detection of total coliform bacteria
<b>2811515</b>	Agar plates m-FC, pk/15	Detection of fecal coliforms
<b>2811415</b>	m-HPC Agar Plates, pk/15	Estimation of the number of live heterotrophic bacteria in water
<b>2811815</b>	m-TEC, modified, prepared agar plates, pk/15	Detection of E. coli in recreational waters
<b>2812115</b>	Nutrient agar w/ MUG plates, pk/15	For confirmation of E. coli
<b>Plastic Ampules</b>		
<b>2608450</b>	Total Coliforms and E. coli mCB24 Broth, Plastic Ampules	For detection of Total Coliform Bacteria and Escherichia coli
<b>2373550</b>	Total Coliform, m-Endo Broth, glass ampules	For detection of Total Coliform Bacteria and Escherichia coli
<b>2373250</b>	Ampules, plastic, m-FC 2 mL, pk/50	For detection of Fecal Coliform Bacteria
<b>2428550</b>	Ampules, m-FC w/rosolic acid, plastic, 2 mL, pk/50	For detection and enumeration of fecal coliforms in wastewater
<b>2428350</b>	Ampules, m-Green ym broth, plastic, pk/50	For detection and enumeration of fungi in beverages
<b>2812450</b>	Plastic ampules m-HPC Broth, pk/50	For estimation of the number of live heterotrophic bacteria in water
<b>2517150</b>	MI Broth, pk/50	For the simultaneous detection of coliforms and E. coli
<b>2373850</b>	Ampules, m-TGE broth, plastic, pk/50	For Heterotrophic Bacteria
<b>2428450</b>	Ampules, m-TGE/TTC broth, plastic, pk/50	For heterotrophic bacteria, contains a redox dye indicator to help visually detect growing bacteria
<b>2924050</b>	Pry plastic ampules, pk/50	For use primarily in beverage applications
<b>2812250</b>	Plastic ampules, pseudomonas broth, pk/50	For detection of Pseudomonas species
<b>2812650</b>	Tryptic Soy Broth Plastic Ampules, pk/50	To culture bacteria, yeasts, and molds, including aerobic gram-positive and gram-negative bacteria; in qualitative procedures for the sterility; and enrichment of aerobes

## Biological Activity Reaction Test (BART)

BART Biodetectors are excellent diagnostic tools to help identify the presence of process disruptors. Find out if you have bacteria creating slime layers and limiting disinfection, or discover if iron reducing bacteria are eating your pipes. 11 varieties to choose from.

### Prod. No. Description

- 2434809** Combination Pack: Convenient multi-pack for detection 3 each of IRB/SRB/SLYM (COMB) of iron-related, sulfate reducing, and slime forming bacteria
- 2478409** Pool and Spa Bacteria (POOL); Problematic pool and spa bacteria; Pseudomonas strains, 9/pk
- 2432509** Slime Forming Bacteria (SLYM); Aerobic/Anaerobic slime producing bacteria; Pseudomonads, 9/pk
- 2432409** Sulfate-Reducing Bacteria (SRB); Anaerobic and aerobic hydrogen sulfide generating bacterial strains, 9/pk
- 2432309** Iron Related Bacteria (IRB); Iron-related bacterial populations oxidizing, reducing, and "accumulating" strains, 9/pk
- 2490409** Heterotrophic Aerobic Bacteria (HAB); Broad spectrum of aerobic bacteria, 9/pk
- 2432709** Blue Green Algae (ALGE); Photosynthetic plant-like microorganisms; Chlorophyceae, Cyanobacteria, desmids, diatoms and euglenoids, 9/pk
- 2831409** Acid Producing Bacteria (APB); Bacterial strains capable of acid production under reductive (oxygen-deprived) conditions, 9/pk
- 2619309** Denitrifying Bacteria (DN); Nitrate reducing bacterial strains, 9/pk
- 2432609** Fluorescing Pseudomonads (FLOR); Fluorescing pseudomonad strains and related bacteria, 9/pk
- 2619407** Nitrifying Bacteria (NB); Ammonium oxidizing strains, 7/pk



## Buffered Dilution Water

Buffered Dilution Water (required for testing non-potable water). Buffered Dilution Water Pillows, PN 2143166, contain 25 pillows each of magnesium chloride and potassium dihydrogen phosphate. Makes 25 L dilution water (1 liter per 1 magnesium chloride + 1 potassium dihydrogen phosphate pillow).

### Prod. No. Description

- 1430598** Buffered Dilution Water, 99 mL, 25/pk
- 2143166** Buffered Dilution Water Pillows, 25/pk



## Multiple Tube Fermentation and Most Probable Number (MPN)

MPN tubes, or multiple tube fermentation, is an alternative way to test for coliforms and E. coli. Though it eliminates manual counting of colonies, all techniques based on statistical probability sacrifice accuracy and precision, as compared to membrane filtration.

### Prod. No. Description

- 2560915** A-1 Medium, 15/pk
- 32215** Brilliant Green Bile Broth Tubes, 15/pk
- 1410415** EC Medium Tubes, 15/pk
- 2471515** EC Medium with MUG Tubes w/o Durham Tubes, 15/pk
- 2282415** EC Medium with MUG Tubes with Durham Tubes, 15/pk
- 2162315** Lauryl Tryptose Broth Tubes, single strength, 15/pk
- 2101415** Lauryl Tryptose Broth Tubes, concentrated, 15/pk
- 2182115** Lauryl Tryptose with MUG Broth Tubes, concentrated, 15/pk
- 2217515** Lauryl Tryptose with MUG Broth Tubes, single strength, 15/pk
- 2277700** Total Bacteria Count Media Set
- 2564325** Tryptic Soy Broth Bottles, 100 mL, 25/pk





## Incubators

All samples, regardless of preparation technique, require incubation. Hach carries incubators for lab or field use.



### Prod. No. Description

- |                |  |
|----------------|--|
| <b>2619200</b> | Model 153 Low-profile Culture Incubator, 110/120 VAC, 50/60 Hz   |
| <b>2569900</b> | Portable Culture Incubator, Auto Cigarette Lighter powered (or customer supplied car power adapter, female. 100-240 VAC, 50/60 Hz to 12 VDC, 10 A) |



## Total Living Biomass Assessment (ATP)

The LuminUltra PhotonMaster is a rugged, low-cost and portable luminometer, which utilizes LuminUltra's 2nd Generation ATP test kits to measure total active microorganisms in any type of fluid or solid sample.

Total active microorganism levels indicate contamination risk and provide real-time, actionable data to keep your drinking water, wastewater, or industrial process running smoothly and efficiently. The PhotonMaster offers a substantial improvement over competitive platforms in both time and cost per test.

- Detect total active microorganisms in any type of sample
- Results in minutes—not hours or days—for real-time results
- Lightweight and compact—Lab or Field operable for maximum flexibility
- Simple and straightforward testing procedure to minimize errors and take action in real-time

See [hach.com](http://hach.com) for more information and available products.



## LuminUltra ATP Testing

LuminUltra test kits are available for a variety of applications, including Drinking water, Oil & Gas, Food and Beverage (CIP), Nitrification, Organics, Wastewater, and other industrial applications.

In addition to instruments and the free and total ATP test kits themselves, Hach carries individual reagents so replacing only what's needed is possible as well as instrument cleaning and maintenance items.

Learn More



See [hach.com](http://hach.com) for available test kits and reagents.





# Lab Instruments

Spectrophotometers

Colorimeters

Dry Thermostat Reactors

Laboratory TOC Analyzers

Portable Parallel Analyzers

Portable Fluorometer

Turbidimeters

Spectral Colorimeters



*Be Right™*

# Spectrophotometers

## Quick Reference Guide - Choose your Spectrophotometer

Hach offers a perfectly coordinated system of photometers and reagents, required accessories and services. For all key parameters from Ammonia to Zirconium. Highest efficiency and accuracy guaranteed – starting with the individual components of the spectrophotometer and the ready-to-use chemistry up to the interaction with you and your laboratory equipment. Hach delivers to you a perfectly coordinated system – as a developer, manufacturer and sales & service partner.

	DR6000 UV VIS Spectrophotometer with RFID Technology	DR3900 Spectrophotometer with RFID technology, 110 - 240 V AC	DR1900 Portable Spectrophotometer
<b>Operating Mode</b>	Transmittance (%), absorbance and concentration (wavelength, time)	Transmittance (%), Absorbance and Concentration, Scanning	Transmittance (%), Absorbance and Concentration
<b>Source Lamp</b>	Tungsten (visible range), deuterium (UV range)	Gas-filled Tungsten (visible)	Xenon Flash
<b>Optical System</b>	Reference beam, spectral	Reference beam, spectral	Reference beam, spectral
<b>Wavelength Range</b>	190 - 1100 nm	320 - 1100 nm	340 - 800 nm
<b>Wavelength Accuracy</b>	± 1 nm	± 1.5 nm (wavelength range 340 - 900 nm)	± 2 nm (range 340 - 800nm)
<b>Wavelength Reproducibility</b>	< 0.1 nm	± 0.1 nm	± 0.1 nm
<b>Wavelength Resolution</b>	0.1 nm	1 nm	
<b>Wavelength Selection</b>	Automatic, based on method selection	Automatic, based on method selection	Automatic
<b>Spectral Bandwidth</b>	2 nm	5 nm	
<b>Scanning Speed</b>	900 nm/min (in 1 nm steps)	> 8 nm/S (in steps of 1 nm)	
<b>Photometric Measuring Range</b>	± 3 Abs	± 3.0 Abs (wavelength range 340 - 900 nm)	0 - 3 Abs (wavelength range 340 - 800 nm)
<b>Photometric Accuracy</b>	5 mAbs @ 0.0 - 0.5 Abs <1% @ 0.5 - 2.0 Abs @ 546 nm	5 mAbs @ 0.0 - 0.5 Abs 1 % at 0.50 - 2.0 Abs	± 0.003 Abs @ 0.0 - 0.5 Abs
<b>Photometric Linearity</b>	< 0.5 % - 2 Abs	< 0.5 % - 2 Abs	< 0.5 % (0.5 - 2.0 Abs)
<b>Stray Light</b>	KI-solution at 220 nm < 3.3 Abs/ < 0.05%	< 0.1% T at 340 nm with NaNO <sub>2</sub>	< 0.5%T at 340 nm with NaNO <sub>2</sub>
<b>Display</b>	TFT 7 inch WVGA color touch	7" TFT	Graphical display 240 x 160 pixel (LCD, b/w, backlit)
<b>Data Logger</b>	5000 data points (Result, Date, Time, Sample ID, User ID)	2000 measured values (Result, Date, Time, Sample ID, User ID)	500 measured values (Result, Date, Time, Sample ID, User ID acc. to GLP)
<b>Preprogrammed Methods</b>	> 240	> 240	>220
<b>User Programs</b>	200	100	50
<b>Sample Cell Compatibility</b>	Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch  Optional 100 mm rectangular cell with additional adapter	Rectangular: 10, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch	13 / 16 mm and 1 inch round adapter, 10 x 10 mm 1 inch square and 10x10mm
<b>Dimensions (H x W x D)</b>	215 x 500 x 460 mm (8.5 x 19.7 x 18.1 in.)	151 x 350 x 255 mm (5.9 x 13.8 x 10.0 in.)	98 x 178 x 267 mm (3.9 x 7.0 x 10.5 in.)
<b>Weight</b>	11 kg (24.3 lbs)	4.2 kg (9.3 lbs)	1.5 kg (3.3 lbs)
<b>Operating Conditions</b>	10 - 40 °C (50 - 104 °F), max. 80% relative humidity (non-condensing)	10 - 40 °C (50 - 104 °F), max. 80% relative humidity (non-condensing)	10 - 40 °C (50 - 104 °F), max. 80% relative humidity (non-condensing)
<b>Storage Conditions</b>	-25 - 60 °C (-13 - 140 °F), max. 80% relative humidity (non-condensing)	-30 - 60 °C (-22 - 140 °F), max. 80% relative humidity (non-condensing)	-30 - 60 °C (-22 - 140 °F), max. 80% relative humidity (non-condensing)
<b>Enclosure Rating</b>	IP20 with closed lid	IP40	IP67
<b>Power Requirements</b>	110 - 240 VAC; 50/60 Hz	110 - 240 VAC; 50/60 Hz	Internal: 4 x AA size Alkaline or 4x NiMH rechargeable Battery*  External: 110 - 240 VAC; 50/60 Hz*  <i>(* optional Module required. May not be available in all regions.)</i>
<b>Interfaces</b>	USB type A (2), USB type B, Ethernet, RFID module	USB type A (2), USB type B, Ethernet, RFID module	USB type Mini IP67 (with optional Module)

# DR6000™ UV VIS Spectrophotometer

## Experience Superior Performance with the DR6000 UV VIS Spectrophotometer, the industry's most advanced lab spectrophotometer.

With UV and Visible Spectrum capabilities, over 250 pre-programmed methods including the most common testing methods used, guided procedures, and integrated quality assurance software, the DR 6000 ensures you are ready to handle your comprehensive water testing needs.



### Your Water Testing Needs, All in One Spectrophotometer

The DR6000 has the most pre-programmed testing methods, including high-speed wavelength scanning across the UV and Visible Spectrum.

### Accessories for High Volume and High Accuracy Testing Needs

A carousel sample changer allows up to seven sequential measurements. The Sipper Module, an instrument-controlled sample delivery system, increases precision by constant optical characteristics.

### Advanced Quality Assurance at Your Fingertips

The DR6000 comes with integrated QA software for scheduling, documenting and interpreting all of your needed quality measurements.

### Guided Procedures and Elimination of False Readings

The DR6000, when used with TNTplus® reagent vials, provides the accurate results you need by guiding you step-by-step through your testing procedures. With TNTplus, the instrument averages 10 readings and eliminates outliers, making scratched, flawed or dirty glassware a non-issue.

### Automatically Avoids Errors

RFID\* technology automatically updates the program calibration factors when you place a TNTplus reagent box near the DR6000. The instrument identifies chemistry expiration dates via a barcode on the vials, and detects chemistry coefficient factors to avoid errors that can occur in lot-to-lot variations in the chemistry.

\*RFID technology currently available only in US, Anguilla, American Samoa, Australia, Bolivia, Canada, Cayman Islands, Columbia, Dominican Republic, El Salvador, Federated States of Micronesia, Guam, Guatemala, Marshall Islands, New Zealand, Northern Mariana Islands, Palau, Panama, Puerto Rico, and US Virgin Islands.

## Order Information

**LPV441.99.00012** DR6000 UV VIS Spectrophotometer with RFID Technology

**LPV441.99.00002** DR6000 UV VIS Spectrophotometer without RFID

### Accessories

**LQV157.99.20002** SIP10 Sipper Set for pour-thru methods, 1 inch vial

**LQV156.99.10012** LOC100 Kit for Radio Frequency ID (RFID\*) based sample tracking

**LZV537** Test Filter Set for DR Spectrophotometers

**2763900** DR/Check Absorbance Standard Kit (Set of 4)

**LZV902.99.00002** Carousel Holder 7 x 1 cm

**LZV902.99.00012** Carousel Holder 5 x 1 inch

**LZV943** Application Software Enzymatic Food Analysis

**LZV942** Application Software Brewery Analysis

**LZV941** Application Software Drinking Water Analysis

Learn More



# DR3900™ VIS Spectrophotometer



## Optimized for safe processes and consistent, quick and accurate water analysis results

Simplicity throughout: Hach's DR3900 provides the simplest way to perform lab tests. Used together with TNTplus chemistries testing steps are reduced. The potential for human error is minimized.

### Simple Preparation

TNTplus® vials use Dosicaps - freeze-dried reagents integrated into sealed cap - that are easier to use than Powder Pillows or Liquid Reagents, without any risk of contamination.

The boxes and vials are color-coded for a fast and easy parameter and range recognition of exactly the test you need.

Step-by-step illustrated test methods are printed on the box as a quick reference and can also be called up in the instrument menu.

### Comprehensive Documentation

Measurement results are documented on the detailed level with timestamp, operator ID, absorbance reading, and calculated concentration. The 2D barcode delivers the lot number and expiry date, logged with every result.

For your accreditation the certificate of analysis can be called up just by wiping the reagent box towards the RFID\* sensor.

\*RFID technology currently available only in US, and certain other countries. Check the datasheet for country availability.

### Fast Execution

A 2D barcode on the TNTplus vial is automatically read by the Hach DR spectrophotometer to identify the appropriate method and take the measurement.

The vial spins to take 10-fold absorbance readings that will be averaged for result determination to exclude scratches and fingerprints. Instrument calibration verification and high instrument stability all combine to eliminate the need to run reagent blanks.

### Customizable

With the ability to store hundreds of user-determined methods, operators are able to tailor the DR3900 to meet the everyday needs of the plant.

Being able to optimize and customize the method portfolio, combined with regular software updates and Smart Monitoring, makes the DR3900 the ultimate solution to water quality lab needs.

## Order Information

- |                        |   |
|------------------------|---|
| <b>LPV440.99.00012</b> | DR3900 Laboratory VIS Spectrophotometer with RFID* Technology |
| <b>LPV440.99.00002</b> | DR3900 Laboratory Spectrophotometer without RFID Technology*  |

### Accessories

- |                        |   |
|------------------------|---|
| <b>LQV157.99.10002</b> | SIP10 Sipper Kit with Tubing and Dual Path Length Cell          |
| <b>LQV156.99.10012</b> | LOC100 Kit for Radio Frequency ID (RFID*) based sample tracking |
| <b>LZV537</b>          | Test Filter Set for DR Spectrophotometers                       |
| <b>2763900</b>         | DR/Check Absorbance Standard Kit (Set of 4)                     |
| <b>LZV873</b>          | Ethernet cable, 2 m   |
| <b>LZV566</b>          | USB Barcode Scanner   |
| <b>LZV582</b>          | USB keyboard QWERTY   |
| <b>LZV874</b>          | Protective film for the DR3900/ DR6000 display                  |

Learn More





# DR1900 Portable Spectrophotometer

## Lab methods in the palm of your hand

The DR1900 combines the ruggedness and portability of a field instrument with over 220 of the most commonly tested water methods.



### Carry Anywhere

The lightest, most compact portable spectrophotometer available easily goes where you need to go.

### Test What You Need

Analyze your water with more preprogrammed methods than any other portable spectrophotometer, or easily create your own methods to suit your unique needs.

### Ensure Accuracy in the Field

Wavelength range of 340 to 800 nm provides accuracy typically seen only in laboratory instruments.

### Make Testing Easier

Simple, easy-to-use interface plus the widest range of vial sizes makes testing flexible.

### Take Into Field Environments

Rugged construction keeps the elements out, which means you can test in the most demanding conditions.

## Order Information

<b>DR1900-01H</b>	DR1900 Portable Spectrophotometer
<b>9624700</b>	DR1900 Portable Spectrophotometer with USB + Power Module

### Accessories

<b>LZV804.99.00002</b>	Power Module for 2100Q/2100Q IS and DR1900
<b>LZV813.99.00002</b>	USB + Power Module for 2100Q/2100Q IS & DR1900
<b>2763900</b>	DR/Check Absorbance Standard Kit (Set of 4)
<b>LZV537</b>	Test Filter Set for DR Spectrophotometers
<b>2990700</b>	Backpack for Portable Meters

Learn More



# DR900 Handheld Colorimeter

## Multi parameter handheld water testing with over 90 colorimetric parameters for use in the most demanding field environments

The portable DR900 allows quick and easy access to your most-used testing methods. This colorimeter is waterproof, dustproof and field durable. With an intuitive user interface, easy data transfer abilities, and the ability to test up to 90 of the most commonly tested water methods, the DR900 makes water testing in harsh field environments a little less challenging.



### Your Favorites at Your Fingertips

Save time by storing your most standard methods for quick access in less than 4 clicks.

### Field Ready in Every Way Possible

This portable, rugged colorimeter is waterproof and dustproof. Drop tested and shock resistant for greater quality assurance.

### Intuitive User Interface

Improved user interface allows quick selections and easier testing.

### Simple Data Communication

Stores data for up to 500 tests, and comes with a USB port for easily downloading or transferring information.

### Satisfies Your Core Testing Needs

A single portable instrument provides access to 90 of the most common parameters.

#### Technical Data\*

<b>Source Lamp</b>	Light Emitting Diode (LED)
<b>Wavelength Range</b>	420 nm, 520 nm, 560 nm, 610 nm
<b>Sample Cell Compatibility</b>	1 inch round or 16 mm round (with adapter)
<b>Data Logger</b>	500 measured values (Result, Date, Time, Sample ID, User ID)
<b>Enclosure Rating</b>	IP67 (vial cover closed)
<b>Battery Requirements</b>	4, AA size alkali cells
<b>Battery Life</b>	6 months (typical) @ 5 readings a day / 5 days / week without backlight** ** Backlight usage will decrease battery life.
<b>Display</b>	Graphical display 240 x 160 pixels (Backlit)
<b>Interface</b>	USB type Mini IP67
<b>Dimensions (H x W x D)</b>	231 x 96 x 48 mm (9.1 x 3.8 x 1.9 in.)
<b>Weight</b>	0.6 kg (1.3 lbs) with battery

\*Subject to change without notice.

#### Order Information

- 9385100** DR900 Multiparameter Portable Colorimeter  
Includes: DR900 instrument, USB cable with mini-USB connector, 4-AA alkaline batteries, 2 glass sample cells 1-inch (25 mm) round with 10, 20, 25-mL marks, 2 sample cells 1 cm/10 mL, sample cell adapter and multilingual user manual
- Reagents and Accessories**
- 4942500** Instrument Carrying Case for DR800 and DR900 Colorimeters, hard-sided
- 4943000** CEL Portable Laboratory Carrying Case
- 2763900** DR/Check Absorbance Standard Kit (Set of 4)
- 2635300** SpecCheck Secondary Gel Standard Kit, DPD Chlorine, 0-2.0 mg/L
- 2980500** SpecCheck Secondary Gel Standard Kit, DPD Chlorine, 0-4.0 mg/L
- 2893300** SpecCheck Secondary Gel Standard Kit, DPD Chlorine, 0-8.0 mg/L
- 2712500** SpecCheck Secondary Gel Standard Kit, Fluoride, 0-2.0 mg/L
- 2708000** SpecCheck Secondary Gel Standard Kit, Ozone, 0-0.75 mg/L
- 2507500** SpecCheck Secondary Gel Standard Kit, Monochloramine/Free Ammonium, 0-4.50 mg/L  $\text{Cl}_2$  / 0-0.50 mg/L  $\text{NH}_3\text{-N}$

Learn More



# DR300 Pocket Colorimeter



## Proven past. Accurate and Fast.

The DR300 maintains the Hach Pocket Colorimeter legacy of reliability with a more user friendly design.

### Reliable

Since 1993, Hach has continued to provide premium chemistries and colorimetry instrumentation, providing dependable, accurate measurements.

### Simple

Simple, intuitive operation reduces potential manual error, ensuring accurate measurement data you can trust, time after time. Larger display with improved backlight makes reading measurements in all conditions even easier.

### Durable

Rugged, waterproof (IP67) design withstands whatever conditions you encounter in the field or on the road (drops, extreme temperatures, rain and dirt).

## Order Information

### DR300 Pocket Colorimeters

The DR300 Pocket Colorimeter includes manual, sample cells, and a carrying case. Reagents can be purchased by contacting Hach or your Hach distributor.

<b>LPV445.97.00110</b>	DR300 Pocket Colorimeter, Chlorine, Free + Total, LR/HR
<b>LPV445.97.01110</b>	DR300 Pocket Colorimeter, Bromine
<b>LPV445.97.02110</b>	DR300 Pocket Colorimeter, Nitrate
<b>LPV445.97.03110</b>	DR300 Pocket Colorimeter, Dissolved Oxygen
<b>LPV445.97.04110</b>	DR300 Pocket Colorimeter, Ozone
<b>LPV445.97.06110</b>	DR300 Pocket Colorimeter, Phosphate
<b>LPV445.97.09110</b>	DR300 Pocket Colorimeter, Zinc
<b>LPV445.97.10110</b>	DR300 Pocket Colorimeter, Molybdenum, LR/HR
<b>LPV445.97.12110</b>	DR300 Pocket Colorimeter, Chlorine, HR, & pH
<b>LPV445.97.15110</b>	DR300 Pocket Colorimeter, Manganese, HR
<b>LPV445.97.16110</b>	DR300 Pocket Colorimeter, Iron, TPTZ
<b>LPV445.97.22110</b>	DR300 Pocket Colorimeter, Iron, Ferrover
<b>LPV445.97.25110</b>	DR300 Pocket Colorimeter, Aluminium
<b>LPV445.97.26110</b>	DR300 Pocket Colorimeter, Monochloramine/Free Ammonium
<b>LPV445.97.40110</b>	DR300 Pocket Colorimeter, Ammonium
<b>LPV445.97.51110</b>	DR300 Pocket Colorimeter, Chlorine Dioxide
<b>LPV445.97.62110</b>	DR300 Pocket Colorimeter, Chlorine, Free + Total, MR/HR

### Wavelength-specific DR300 Pocket Colorimeters

Program custom methods and calibrations on two channels.

<b>LPV445.97.50110</b>	DR300 Pocket Colorimeter, 500 nm
<b>LPV445.97.52110</b>	DR300 Pocket Colorimeter, 528 nm
<b>LPV445.97.60110</b>	DR300 Pocket Colorimeter, 600 nm
<b>LPV445.97.65110</b>	DR300 Pocket Colorimeter, 655 nm

### Reagents and Accessories

<b>2635300</b>	SpecCheck Secondary Gel Standard Kit, DPD Chlorine, 0-2.0 mg/L
<b>2893300</b>	SpecCheck Secondary Gel Standard Kit, DPD Chlorine, 0-8.0 mg/L
<b>2507500</b>	SpecCheck Secondary Gel Standard Kit, Monochloramine/Free Ammonium, 0-4.50 mg/L $\text{Cl}_2$ / 0-0.50 mg/L $\text{NH}_3\text{-N}$
<b>2708000</b>	SpecCheck Secondary Gel Standard Kit, Ozone, 0-0.75 mg/L
<b>4674300</b>	Batteries, AAA, Alkaline, 1.5 V, pk/4
<b>4660200</b>	MultiTest Kit Case (22 x 17 x 15 cm), blue, polypropylene
<b>2427606</b>	Sample Cell, 1 inch round glass, 6 pcs
<b>4864302</b>	Sample Cell, 1 inch round polystyrene, 2 pcs
<b>2126102</b>	Sample Cell, 1 cm round, pk/2 (unmatched, caps not included)

## Technical Data\*

<b>Source Lamp</b>	Light emitting diode (LED)	<b>Power Supply</b>	Four AAA alkaline batteries; approximate life is 5000 tests
<b>Detector</b>	Silicon photodiode	<b>Display</b>	LCD with backlight
<b>Wavelength</b>	As specified by model, $\pm 2$ nm	<b>Dimensions (H x W x D)</b>	34 x 69 x 157 mm (1.3 x 2.7 x 6.2 in.)
<b>Sample Cell Compatibility</b>	1 cm (10 mL), 25 mm (10 mL)	<b>Weight</b>	0.25 kg (0.55 lbs.)
<b>Data Logger</b>	Last 50 measurements	<i>*Subject to change without notice.</i>	
<b>Enclosure Rating</b>	IP67, waterproof at 1 m for 30 minutes		

### Learn More



# DRB200 Dry Thermostat Reactors



The Hach DRB200 Dry Thermostat Reactor provides unique one-key operation. Programs for Hach procedures with digestion are preprogrammed into the instrument. And it's fast—the block heats from ambient to 150 °C (302 °F) in less than 10 minutes. Safe to operate.

The fully insulated heater block of the DRB200 reactor prevents skin contact with the heater block. Temperature safeguards are provided to prevent overheating. The reactor will emit an audible signal and automatically shutdown at the end of the run.

Optional dual block for simultaneous digestions is available. Two heater blocks in the DRB200 reactor give the operator independent control of two temperatures and durations. Use this option to run two programs at the same time.

13 mm vial wells are for TNTplus, 16 mm for traditional Test 'N Tube. 20 mm wells are for Total Nitrogen and Total Metals digestion.

## Technical Data\*

<b>Temperature Range</b>	37 - 165 °C (99 - 329 °F)
<b>Operating Temperature Range</b>	10 - 45 °C (50 - 113 °F)
<b>Programmable Timer Range</b>	0 - 480 minutes
<b>Heating Rate</b>	20 to 150 °C in 10 minutes
<b>Temperature Stability</b>	±2 °C
<b>Application</b>	COD: 150 °C   120 minutes TOC: 105 °C   120 minutes Metals: 100 °C   60 minutes TN & TP: 100/105 °C   60/30 minutes*
<b>Power Requirements</b>	100 - 240 VAC; 50/60 Hz, 600 VA
<b>Dimensions (H x W x D)</b>	145 x 250 x 310 mm (5.7 x 9.8 x 12.2 in.)
<b>Weight</b>	Single block: 2.0 kg (4.4 lbs) Dual block: 2.8 kg (6.2 lbs)

\*Subject to change without notice.

## Order Information

<b>LTV082.53.30001</b>	DRB200 Digital Reactor Block: 9 x 16 mm vial wells, 2 x 20 mm vial wells, 115 VAC
<b>LTV082.53.40001</b>	DRB200 Digital Reactor Block, 15 x 16 mm vial wells, 115 VAC
<b>LTV082.53.42001</b>	DRB200 Digital Reactor Block, 21 x 16 mm vial wells, 4 x 20 mm vial wells, 115 VAC
<b>LTV082.53.44001</b>	DRB200 Digital Reactor Block, 30 x 16 mm vial wells, 115 VAC
<b>DRB200-01</b>	DRB200 Digital Reactor Block for TNTplus: 9x13mm vial wells, 2x20 mm vial wells, 115 VAC
<b>DRB200-02</b>	DRB200 Digital Reactor Block for TNTplus: 21x13mm vial wells, 4x20mm vial wells, 115 VAC
<b>DRB200-03</b>	DRB200 Digital Reactor Block for TNTplus: 30x13mm vial wells, 115 VAC
<b>DRB200-04</b>	DRB200 Digital Reactor Block for TNTplus: 12x13mm vial wells, 8x20 mm vial wells, 115 VAC

## Reactor Adapters

These aluminum tubes are inserted into the 16mm vial wells of existing reactors, to adapt them to the 13 mm TNTplus vials. The adapters can be removed (once the heater block has cooled) if the customer needs to use 16 mm vial chemistries.

<b>2895805</b>	Reducing adapter, 16 mm to 13 mm vials, 5 pieces
<b>HHA155</b>	Reducing adapter for DRB200, 20 to 16 mm

Learn More





# QP1680 TOC/TN<sub>b</sub> High-Temperature Laboratory Analyzer

## The QP1680 Analyzer measures Total Organic Carbon (TOC) and Total Nitrogen (TN<sub>b</sub>) in one sample.

The QP1680 is available as a combined TOC and TN<sub>b</sub> analyzer or for the individual parameters TOC or TN<sub>b</sub>.

The most important features include:

- *Direct sample injection eliminates sample contact with valves and the built-in injection syringe, which minimizes the risk of sample carry-over.*
- *Large diameter sample aspiration tubing can handle particles up to 800 µm, expanding possible applications and reducing clogging.*
- *Integrated stirrer for each sample position homogenizes particle-containing samples before injection.*
- *Small footprint with integrated 65-position auto-sampler requires less space in the laboratory (an auto-sampler with 96 positions is also available as an alternative).*
- *Simple operation, data analysis and system diagnosis thanks to an intuitive software package.*



### Order Information

LPV448.99.00001	QP1680 High-Temperature TOC Analyzer, with auto sampler, 65 positions
LPV448.99.00501	QP1680 High-Temperature TOC Analyzer, with auto sampler, 96 positions
LPV448.99.01001	QP1680 High-Temperature TOC/TN <sub>b</sub> Analyzer, with auto sampler, 65 positions
LPV448.99.01501	QP1680 High-Temperature TOC/TN <sub>b</sub> Analyzer, with auto sampler, 96 positions
LPV448.99.02001	QP1680 High-Temperature TN <sub>b</sub> Analyzer, with auto sampler, 65 positions
LPV448.99.02501	QP1680 High-Temperature TN <sub>b</sub> Analyzer, with auto sampler, 96 positions

### Consumables & Spare Parts

SMKIT500000	QP1680 TOC/TN <sub>b</sub> Starter Package
SMKIT501000	QP1680 Consumables Kit, 2500 analysis
SMKIT501100	QP1680 Consumables Kit, 5000 analysis
SMKIT501200	QP1680 Consumables Kit, 10000 analysis
SMSYS503000	Solids Module for QP1680 TOC/TN <sub>b</sub> Analyzer
SMKIT503000	Solids Module Starter Package for QP1680 TOC/TN <sub>b</sub>

### Computer

SMCOM100700	LIMS License Key for TEIS Software
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### Learn More



### Technical Data\*

Model	QP1680-TOC	QP1680-TOC/TN <sub>b</sub>	QP1680-TN <sub>b</sub>
Parameter	TOC	TOC, TN <sub>b</sub>	TN <sub>b</sub>
Oxidation Method	Catalytic combustion at 680 °C	Catalytic combustion at 720 °C	Catalytic combustion at 720 °C
Measurement Method	NDIR (non-dispersive Infrared Detection)	TOC: NDIR (non-dispersive Infrared Detection) TN: Chemiluminescence	Chemiluminescence
Analysis time	Approx. 3 minutes	Approx. 4 minutes	Approx. 3 minutes
Gas consumption	150 mL/min*	200 mL/min*	200 mL/min
*Sample preparation for NPOC determination requires additional 300-350 mL/min.			
Gas specifications	Oxygen or synthetic air: minimum 99.998% (4.8) at 3 - 10 bar		
Temperature Range	Furnace temperature max. 1050 °C (1922 °F) (depending on configuration) TC, TIC, NPOC, TN <sub>b</sub> : 0 - 30000 mg/L		
Lower Limit of Detection (LOD)	TC, TIC, NPOC: 50 µg/L TN <sub>b</sub> : 20 µg/L		
Sample Volume	10 - 1000 µL		
Operating Conditions	20 - 30 °C (68 - 86 °F); 20 - 80% relative humidity (non-condensing)		
Norms and Standards	TOC / NPOC: ASTM D7573, EN 1484, EPA 415.1, EPA 9060A, ISO 8245, SM 5310B, NEN-ISO 20236 TN <sub>b</sub> : ASTM D8083, EN 12260, ISO 11905-2, NEN-ISO 20236		
Power Supply	Analyzer: 100 - 240 VAC, 50/60 Hz, 16 A, with protective grounding PC: 100 - 240 VAC, 50/60 Hz, 1.6 A, with protective grounding Monitor: 100 - 240 VAC, 50/60 Hz, 1.6 A, with protective grounding		
Dimensions	440 x 380 x 700 mm / 17.3 x 15 x 27.6 in. (H x W x D)		

\*Subject to change without notice.

# SL1000 Portable Parallel Analyzer (PPA)

## Chloramination Testing Can Be Done 75% Faster

The new Hach® SL1000 Portable Parallel Analyzer (PPA) performs the same tests with less than half the manual steps. Get highly accurate results with less opportunity for errors in a fraction of the time. Up to six parameters tested simultaneously.



## Perform multiple tests faster

Complete more tests on site, get the results you need faster, allowing you to visit more sites in each shift. Perform up to four colorimetric and two probe based measurements in parallel 75% faster than with other methods.

## Less Variability

Automation and internal temperature control make the entire process consistent and repeatable, while applying the same processes as current Hach methods. Avoid manual steps that can introduce variability, even when performed by experienced testers.

## Less Hassle

A single instrument combines colorimetric and probe testing in a field kit that requires fewer bulky accessories. All chemicals and processes are entirely contained inside the Chemkey. There are no powder pillows or glass vials to handle.

## Order Information

- |                 |   |
|-----------------|---|
| <b>9430000</b>  | SL1000 Portable Parallel Analyzer (PPA)<br>Includes: SL1000 meter, carrying case, 1 instrument sample cup, 2 probe sample cups, rechargeable battery, battery charger, hand strap, instrument manual, and USB cable.  |
| <b>8499000</b>  | Full SL1000 Portable Parallel Analyzer (PPA) Kit<br>Full kit includes basic instrument package plus: 1 pH probe, 1 conductivity probe and 1 box each of Free Cl, Total Cl, Monochloramine, Nitrite and Free Ammonia Chemkeys.   |
| <b>25632200</b> | Full SL1000 Portable Parallel Analyzer (PPA) Nitrification Kit<br>SL1000 meter, 1 pH probe, 1 nitrate probe, 1 box each of Free Cl, Total Cl, MonoCl, Free Ammonia and Nitrite Chemkeys, carrying case, 1 instrument sample cup, 2 probe sample cups, rechargeable battery, battery charger, handstrap, instrument manual, and USB cable. |

## Optional Accessories

- |                |   |
|----------------|---|
| <b>9427900</b> | Chlorine Verification Chemkey                           |
| <b>9436800</b> | System Verification Chemkey                             |
| <b>9374200</b> | Car Charger for SL1000/SL250 Portable Parallel Analyzer |
| <b>9094900</b> | Replacement Battery                                     |
| <b>9377700</b> | Replacement Tray  |
| <b>9394900</b> | Replacement Tray (Set of four)                          |
| <b>2522905</b> | Cotton-Tipped Applicator                                |

## Technical Data\*

<b>Battery Requirements</b>	Rechargeable Lithium-Ion battery pack, 7.4 V, 5.0 Ah (5000 mAh)
<b>Battery Life</b>	>200 Chemkey tests per full battery charge
<b>Certifications</b>	CE, UKCA, FCC, ISED, RCM, KC
<b>Detector</b>	Silicon photodiode
<b>Measurement Modes</b>	Transmittance (%), Absorbance (abs) and Concentration (Conc)
<b>Interfaces</b>	Mini USB
<b>Connector</b>	5-Pin Input Connector: Two M12 connectors for Intellical probes
<b>Chemkey Slots</b>	4
<b>Operating Temperature Range</b>	Discharging: 5 - 50 °C (41 to 122 °F) 7 maximum 85% relative humidity (non-condensing) Charging: 5 - 45 °C (41 to 113 °F) / maximum 85% relative humidity (non-condensing)
<b>Enclosure Rating</b>	IP54
<b>Dimensions (H x W x D)</b>	258.3 x 130.8 x 58.9 mm (10.2 x 5.1 x 2.3 in.)
<b>Weight</b>	2.65 lbs. (1.2 kg)

*\*Subject to change without notice.*

**Chemkey®**  
**Reagents**



## Learn More



# SL250 Single-Port Portable Parallel Analyzer (PPA)

## One portable instrument— all the key parameters you need

Hach®'s SL250 Portable Parallel Analyzer (PPA) is an innovative multiparameter water quality meter that allows you to simultaneously perform colorimetric and probe-based measurements. The instrument and corresponding Chemkey® reagents are easy to use regardless of technical expertise.

Compared to traditional powder or liquid reagent methods, Chemkeys use a simplified testing method that requires no sample preparation, making the process significantly easier, faster, and safer while drastically reducing variability in results.

In addition to the many colorimetric measurements, you can measure pH, dissolved oxygen, conductivity, and more on one device.



### Technical Data\*

<b>Battery Requirements</b>	Lithium-ion polymer rechargeable battery, 7.4 V, 5.0 Ah (5000 mAh)
<b>Battery Life</b>	>200 Chemkey tests per full battery charge
<b>Certifications</b>	CE, UKCA, FCC, ISED, RCM, KC
<b>Detector</b>	Silicon photodiode
<b>Measurement Modes</b>	Transmittance (%), Absorbance (abs) and Concentration (Conc)
<b>Data Memory</b>	Memory: 1000 measured values (result, date, time, site ID, user ID)
<b>Interfaces</b>	Mini USB port
<b>Connector</b>	5-Pin Input Connector: Two M12 connectors for Intellical probes
<b>Chemkey Slots</b>	1
<b>Operating Temperature Range</b>	Discharging: 5 - 50 °C (41 - 122 °F), maximum 85% relative humidity (non-condensing) Charging: 5 - 45 °C (41 - 113 °F), maximum 85% relative humidity (non-condensing)
<b>Enclosure Rating</b>	IP54
<b>Dimensions</b>	(HxWxD) 258.3 x 130.8 x 58.9 mm (10.2 x 5.1 x 2.3 in.)
<b>Weight</b>	1.0 kg (2.2 lbs)

*\*Subject to change without notice.*

### Accuracy and repeatability at your fingertips

Automatic parameter selection and measurement processes make results consistent and repeatable while using the same trusted chemistries as current Hach methods. Avoid manual steps that can introduce variability between users.

### Perform your tests faster

With sample prep eliminated, get the results you need faster. You have the ability to perform up to three simultaneous tests.

### No need to handle chemicals

A single instrument combines colorimetric and probe-based testing in a field kit that requires fewer accessories. All chemicals and processes are entirely contained inside the Chemkey. There are no powder pillows or glass vials to handle.

### Order Information

**9430250** SL250 Single-Port Portable Parallel Analyzer (PPA)

#### Optional Accessories

**9427900** Chlorine Verification Chemkey

**9436800** System Verification Chemkey

**9374200** Car Charger for SL1000/SL250 Portable Parallel Analyzer

**9094900** Replacement Battery

**9377700** Replacement Tray

**9394900** Replacement Tray (Set of four)

**2522905** Cotton-Tipped Applicator

Learn More



# DR1300 FL Portable Fluorometer



**Portable lab meter  
for ultra low range  
chlorine and sulfite  
detection**

## Protect Your Assets

DR1300 FL offers simple methods, with increased accuracy over other traditional methods, to deliver confident results that chlorine has been removed or reduced to meet your process specifications. Accuracy in your water analysis protects your assets, and now you have the control to consistently measure down to 2 ppb chlorine and 6 ppb sulfite with industry-first fluorescence testing methods.

## Monitor and Optimize Your Dechlorination Process

Monitor that you have removed or reduced chlorine or optimize and control by verifying low levels of residual chlorine and sulfite with the DR1300 FL. Reduce biofouling potential and save on dechlorination costs by testing for sulfite and chlorine at ultra-low levels. You will be able to adjust your bisulfite feed or GAC process and keep a low chlorine presence to avoid downtime and corrective measures.

## Depend on Direct Measurements

The DR1300 FL provides portable tests for free and total chlorine as low as 2 ppb and sulfite down to 6 ppb. It works with your monitoring and control tools to improve your current process. You will get quick and easy direct measurements to help ensure product quality.

## New Fluorescence Technology

Groundbreaking ultra-low range fluorescence tests from Hach offer easy-to-perform ultra-low range solutions for free or total chlorine and sulfite. The DR1300 FL and fluorescence methods overcome many common interferences as well. You get the precision and accuracy you need.

### Technical Data\*

Parameter	Chlorine free & total, Sulfite
Measurement Range 2	Free Chlorine: 2 - 100 µg/L (ppb)
	Total Chlorine: 3 - 100 µg/L (ppb)
	Sulfite: 6 - 500 µg/L (ppb)
Enclosure Rating	IP65
Light Source	UV LED, 365 nm
Detector	Silicon photodiode
Display	Graphical LCD with backlight, 160 x 240 pixels
Application	Indoor or outdoor use
Operating Temperature Range	4 - 49 °C (40 - 120 °F), 0 - 85% relative humidity (non-condensing)
Data Storage	16 GB SD Card or 60,000,000 data points
Power Supply	Four AA alkaline batteries
Dimensions	(W x H x D) 26.5 x 8.8 x 6.2 cm (10.43 x 3.46 x 2.44 inches)
Weight	0.6 kg (1.32 lb) without batteries

*\*Subject to change without notice.*

### Order Information

**LPV449.97.01002** DR1300 FL Portable Fluorometer with Bluetooth

#### Reagents

- 34252000** ULR Total Chlorine Fluorescence Test Kit, 3-100 µg/L (ppb), 100 Tests
- 34251000** ULR Free Chlorine Fluorescence Test Kit, 2-100 µg/L (ppb), 100 Tests
- 34250000** ULR Sulfite Fluorescence Test Kit, 6-500 µg/L (ppb), 100 Tests
- 34630000** Fluorescence Standards Kit

#### Accessories

- LPZ449.99.00001** 16 mm Sample Cell Adapter & Cover
- LPZ449.99.00002** DR1300 FL Bluetooth Dongle
- 100866** 16 mm Sample Vials, pk/6
- 3563500** Sample Vial Holder for 16 mm Fluorescence Test Sample Cells

**Learn More**





# TU5200 Benchtop Laser Turbidimeters

## The next standard in the evolution of turbidity

Only the new TU 5 Series Lab & Process Turbidimeters with 360° x 90° Detection deliver unprecedented confidence that a change in your reading is a change in your water.



## Groundbreaking 360° x 90° Detection Technology

The TU5 Series employs a unique optical design that sees more of your sample than any other turbidimeter, delivering the best low level precision and sensitivity while minimising variability from test to test.

## Matching lab and online results

For the first time you will be able to remove the uncertainty of which measurement to trust, thanks to identical 360° x 90° Detection Technology in both instruments.

## Everything about turbidity – faster

The TU5 Series dramatically reduces the time needed to get a turbidity measurement you can rely on, with 98% less online sample surface area to clean, sealed vials for calibration, and the elimination of the need for indexing and silicone oil in the lab. Not to mention, a smaller online sample volume means you will detect events almost immediately.

### Order Information

<b>LPV442.99.03012</b>	TU5200 Benchtop Laser Turbidimeter with RFID, EPA Version
<b>LPV442.99.01012</b>	TU5200 Benchtop Laser Turbidimeter without RFID, EPA Version
<b>LPV442.99.03022</b>	TU5200 Benchtop Laser Turbidimeter with RFID, ISO Version
<b>LPV442.99.01022</b>	TU5200 Benchtop Laser Turbidimeter without RFID, ISO Version

*Hach TU5200 benchtop turbidimeters are supplied with Stabcal kit (10, 20 and 600 NTU), 2 sample vials, power supply, dust cover, vial stand, and user manual.*

#### Accessories and Consumables

<b>LZY835</b>	Stabcal Primary Turbidity Standards Kit, 10/20/600 NTU, with RFID
<b>LZY898</b>	Stabcal Primary Turbidity Standards Kit without RFID (10 NTU, 20 NTU, 600 NTU)

<b>LZY901</b>	Glass Rod Secondary Turbidity Standard <0.1 NTU
<b>LZV946</b>	Sample Vials for TU5200
<b>LQV157.99.50002</b>	SIP10 Sipper Unit for TU5200
<b>LZY903</b>	Manual Vial Wiper for TU5200, TU5300sc, and TU5400sc
<b>LZZ003</b>	Stabcal Verification Vial, 1 NTU, with RFID
<b>LZZ004</b>	Stabcal Verification Vial, 1 NTU, without RFID
<b>LZZ005</b>	Stabcal Primary Turbidity Standards Set, 1/10/20 NTU, with RFID
<b>LZZ006</b>	Stabcal Primary Turbidity Standards Set, 1/10/20 NTU, without RFID

*See also Process Instruments section for TU5 Series Online Turbidimeters.*

#### Learn More



# TL23 Series Laboratory Turbidimeter

## Trusted measurement for high range turbidity applications; simplified.

The TL23 Series laboratory turbidimeters blend trusted technology and improved features to simplify testing in the most demanding industrial and wastewater applications.



### Improved and intuitive design

The TL23 Series' large full color touch screen display and intuitive user interface accelerate setup, calibration and measurement. An easy interface and guided procedures give you confidence in your results.

### A smart device for more reliable measurements

The TL23 Series ensures stable readings and accurate analysis by capturing turbidity readings once the device detects sample stability. This quality step removes subjectivity and the need for repeated measurements.

### Easy to use. Easy to Be Right

The TL23 Series provides everything you need at your fingertips. With a USB port for easy data export, sample identification for traceability, and self-diagnostics for quality assurance, Hach® makes it easy toBe Right.

## Order Information

<b>LPV444.99.00210</b>	TL2300 Tungsten Lamp Turbidimeter, EPA, 0 - 4000 NTU
<b>LPV444.99.00120</b>	TL2310 LED Turbidimeter, ISO, 0 - 1000 NTU
<b>LPV444.99.00310</b>	TL2350 Tungsten Lamp Turbidimeter, EPA, 0 - 10000 NTU
<b>LPV444.99.00320</b>	TL2360 LED Turbidimeter, ISO, 0 - 10000 NTU

*Hach TL23 Series turbidimeters are supplied with 6x 1-inch sample cells with caps (30 mL), Stablcal calibration kit, Gelex secondary turbidity standardization kit, power supply, power cord, dust cover, silicone oil, oiling cloth, and user manual.*

### Replacement Parts

<b>9647700</b>	Cover, lamp access
<b>9649100</b>	Dust cover
<b>9653500</b>	Colour filter module for EPA compliance
<b>4708900</b>	Lamp replacement kit
<b>4707600</b>	Polishing cloth
<b>126936</b>	Silicone Oil, 15 mL

### Accessories

<b>4397500</b>	Sample Degassing Kit
<b>4397510</b>	Sample Filtration and Degassing Kit
<b>2662110</b>	Stablcal Calibration Kit, <0.1/20/200/1000/4000 NTU, 100 mL Bottles
<b>2662100</b>	Stablcal Calibration Kit, <0.1/20/200/1000/4000 NTU, 500 mL Bottles
<b>2723342</b>	Stablcal Turbidity Standard, 0.10 NTU, 100 mL
<b>2697942</b>	Stablcal Turbidity Standard, 0.30 NTU, 100 mL
<b>2698042</b>	Stablcal Turbidity Standard, 0.50 NTU, 100 mL
<b>246142</b>	Formazin Turbidity Standard, 4000 NTU, 100 mL
<b>246149</b>	Formazin Turbidity Standard, 4000 NTU, 500 mL

Learn More



# 2100Q & 2100Q IS Portable Turbidimeters



## Easiest calibration and verification with accurate results every time.

The Hach 2100Q and 2100Q IS Portable Turbidimeters offer unsurpassed ease of use and accuracy in turbidity measurement. Only Hach offers this combination of advanced features including assisted calibration, simplified data transfer, and innovative measurement techniques that give you accurate results every time.

### Easy on-screen assisted calibration and verification

Save time and get accurate results with an easy-to-follow interface that eliminates the need for complicated manuals to perform routine calibrations. Single-standard Rapidcal™ calibration offers a simplified solution for low level measurements, while ensuring you meet reporting requirements.

### Simple data transfer

Data transfer with the optional USB+Power Module is simple, flexible, and doesn't require additional software. All data can be transferred to the module in XML format and easily downloaded to your computer with a USB connection, providing superior data integrity and availability.

### Accurate for rapidly settling samples

The innovative Rapidly Settling Turbidity™ mode provides accurate measurements for difficult to measure, rapidly settling samples. An exclusive algorithm that calculates turbidity based on a series of automatic readings eliminates redundant measurements and estimating.

### Convenient data logging

Up to 500 measurements are automatically stored in the instrument for easy access and backup. Stored information includes: date and time, operator ID, reading mode, sample ID, sample number, units, calibration time, calibration status, error messages, and the result.

### Optical system for precision in the field

The two-detector optical system compensates for color in the sample, light fluctuation, and stray light, enabling analysts to achieve laboratory-grade performance on a wide range of samples, even under difficult site conditions.

## Order Information

<b>2100Q01</b>	2100Q Portable Turbidimeter (EPA), 0-1000 NTU
<b>2100QIS01</b>	2100Q IS Portable Turbidimeter (LED), 0-1000 FNU
<b>2100Q01USB</b>	2100Q Portable Turbidimeter Kit (EPA), 0-1000 NTU, with USB and Power Module
<b>2100QIS01USB</b>	2100Q IS Portable Turbidimeter (LED), 0-1000 FNU, with USB and Power Module

*Hach 2100Q portable turbidimeters are supplied with four AA alkaline batteries, a carrying case with insert, Stablcal primary calibration standards in 1" sealed vials (20, 100, 800 NTU), 10 NTU primary verification standard, 6 sample cells with screw-tops, instrument manual (printed), quick start guide, silicone oil and oiling cloth.*

### Optional Accessories

<b>LZV813.99.00002</b>	USB + Power Module for 2100Q/2100Q IS & DR1900
<b>LZV804.99.00002</b>	Power Module for 2100Q/2100Q IS and DR1900
<b>2971304</b>	Battery, NiMH AA, pk/4
<b>4397500</b>	Sample Degassing Kit
<b>2971210</b>	Stablcal® Turbidity Standards Calibration Set, 2100Q Portable Turbidimeter, 100 mL bottles

<b>2971200</b>	Stablcal® Turbidity Standards Calibration Kit, 2100Q Portable Turbidimeter, 500 mL bottles
<b>2464105</b>	Gelex Secondary Standards Kit, 2100 Series Portable Turbidimeters

### Replacement Parts

<b>2971205</b>	Stablcal® Turbidity Standards Calibration Kit, 2100Q/QIS Portable Turbidimeter, Sealed Vials
<b>2961701</b>	Stablcal® Verification Standard for 2100Q 10 NTU
<b>126936</b>	Silicone Oil, 15 mL SCDB
<b>4707600</b>	Sample Cell Oiling Cloth
<b>2971500</b>	2100Q Carrying Case
<b>2971507</b>	Insert, Molded Bottom, 2100Q Carrying Case
<b>2434706</b>	Portable Turbidimeter Sample Cells, pack of 6
<b>4653900</b>	Replacement lamp assembly for 2100 Series Portable Turbidimeters
<b>1938004</b>	Battery, AA, 1.5 VDC, Alkaline, pk/4
<b>2697942</b>	Stablcal® Turbidity Standard, 0.30 NTU, 100 mL
<b>2698042</b>	Stablcal® Turbidity Standard, 0.50 NTU, 100 mL

### Learn More



# Lab Turbidimeters

## Quick Reference Guide

Model	TL2300 EPA	TL2310 ISO	TL2350 EPA	TL2360 ISO
<b>Regulatory</b>	Meets EPA Method 180.1	Meets ISO 7027, DIN EN 27027, DIN 38404 and NFT 9033	Meets EPA Method 180.1	Meets ISO 7027, DIN EN 27027, DIN 38404 and NFT 9033
<b>Light Source</b>	Tungsten filament lamp	Light-emitting diode (LED) at 860 ± 30 nm	Tungsten filament lamp	Light-emitting diode (LED) at 860 ± 30 nm
<b>Units</b>	NTU and EBC	FNU and NTU	NTU, EBC, Abs (absorbance), %T (% transmittance) and mg/L	FNU, FAU, NTU, EBC, Abs (absorbance), %T (% transmittance) and mg/L
<b>Range</b>	0 - 4000 NTU	0 - 1000 NTU	0 - 10000 NTU	0 - 10000 NTU
<b>Accuracy</b>	Ratio on: ±2% of reading plus 0.01 NTU from 0 - 1000 NTU, ±5% of reading from 1000 - 4000 NTU based on formazin primary standard  Ratio off: ±2% of reading plus 0.01 NTU from 0 - 40 NTU	±2% of reading plus 0.01 FNU/NTU from 0 - 1000 FNU/NTU	Ratio on: ±2% of reading plus 0.01 NTU from 0 - 1000 NTU, ±5% of reading from 1000 - 4000 NTU ±10 % of reading from 4000 - 10000 NTU  Ratio off: ±2% of reading plus 0.01 NTU from 0 - 40 NTU	FNU: ±2% of reading plus 0.01 FNU from 0 - 1000 FNU  FAU: ±10% of reading from 20 - 10000 NTU  NTU: ±2% of reading plus 0.01 NTU from 0 - 1000 NTU, ±5% of reading from 1000 - 4000 NTU, ±10% of reading from 4000 - 10000 NTU
<b>Repeatability</b>	±1% of reading or 0.01 NTU, whichever is greater (under reference conditions)			
<b>Response Time</b>	Signal averaging off: 6.8 seconds / Signal averaging on: 14 seconds (when 10 measurements are used to calculate the average)			
<b>Stabilization Time</b>	Ratio on: 30 minutes after start-up Ratio off: 60 minutes after start-up	Immediately	Ratio on: 30 minutes after start-up Ratio off: 60 minutes after start-up	Immediately
<b>Reading Modes</b>	Single, continuous, Rapidly Settling Turbidity™, signal averaging on or off, ratio on or off	Single, continuous, Rapidly Settling Turbidity™, signal averaging on or off	Single, continuous, Rapidly Settling Turbidity™, signal averaging on or off, ratio on or off	Manual or auto range, signal averaging on and adjustable or off, ratio on or off
<b>Display</b>	17.8 mm (7 in.) color touch screen			
<b>Communication</b>	USB			
<b>Interface</b>	2 USB-A ports for USB flash drive, external thermal printer, keyboard and barcode scanner			
<b>Data Logging</b>	2000 total logs, includes reading log, verification log and calibration log			
<b>Air Purge</b>	Dry nitrogen or instrument grade air (ANSI MC 11.1, 1975) 0.1 scfm at 69 kPa (10 psig); 138 kPa (20 psig) max Hose barb connection for 1/8-inch tubing			
<b>Sample Cell Compatibility</b>	Round cells 95 x 25 mm (3.74 x 1 in.) borosilicate glass with rubber-lined screw caps			
<b>Sample Requirements</b>	25 mm sample cell: 20 mL minimum 0 to 70 °C (32 to 158 °F)			
<b>Certifications</b>	CE, KC, RCM			
<b>Power requirements</b>	100 - 240 V AC, 50/60 Hz, 3.4 A			
<b>What's included?</b>	TL2300 Turbidimeter, silicone oil, oiling cloth, USEPA filter assembly, 1-inch sample cells (30 mL) with caps (6x), Gelex secondary turbidity standardization kit, Stablcal calibration kit, power supply, power cord, dust cover	TL2310 Turbidimeter, silicone oil, oiling cloth, 1-inch sample cells (30 mL) with caps (6x), Gelex secondary turbidity standardization kit, Stablcal calibration kit, power supply, power cord, dust cover	TL2350 Turbidimeter, silicone oil, oiling cloth, USEPA filter assembly, 1-inch sample cells (30 mL) with caps (6x), Gelex secondary turbidity standardization kit, Stablcal calibration kit, power supply, power cord, dust cover	TL2360 Turbidimeter, silicone oil, oiling cloth, 1-inch sample cells (30 mL) with caps (6x), Gelex secondary turbidity standardization kit, Stablcal calibration kit, power supply, power cord, dust cover

*\*Subject to change without notice.*



# Lab Turbidimeters

## Quick Reference Guide

Model	2100Q	2100Q IS	TU5200 EPA	TU5200 ISO
Regulatory	EPA Method 180.1		EPA	DIN EN ISO 7027
Light Source	Tungsten Filament Lamp	LED	Class 2 laser product, with embedded 650 nm (EPA 0.43 mW), max. 0.55 mW (complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50)	Class 1 laser product, with embedded 850 nm (ISO), max. 0.55 mW (complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50)
Range	0 - 1000 NTU	0 - 1000 FNU	0 - 700 NTU / FNU / TE/F / FTU 0 - 100 mg/L 0 - 175 EBC	0 - 1000 NTU / FNU / TE/F / FTU 0 - 100 mg/L 0 - 250 EBC
Accuracy	$\pm 2\%$ of reading plus stray light		$\pm 2\%$ plus 0.01 NTU from 0 - 40 NTU; $\pm 10\%$ of reading from 40 - 1000 NTU based on Formazin primary standard (at 25 °C)	
Response Time	6 s in normal reading mode		Signal averaging off: 7 seconds Signal averaging on: 10 seconds (when averaging time is 5 seconds)	
Power Supply	4 NiMH 1.2 V AA batteries or 4 alkaline 1.5 V AA batteries or 100 - 240 VAC; 50/60 Hz (with optional Power or USB + Power module)		100 - 240 VAC; 50/60 Hz	
Operating Temperature Range	0 - 50 °C (32 - 122 °F)		10 - 40 °C (50 - 104 °F)	
Storage Conditions	-40 - 60 °C (-40 - 140 °F)		-30 - 60 °C (-22 - 140 °F)	
Enclosure Rating	IP67		IP20	
Sample Volume	15 mL			
Sample Cell Compatibility	60 x 25 mm (2.36 x 1 in.) borosilicate glass with screw cap			
Dimensions (H x W x D)	77 x 107 x 229 mm (3.0 x 4.2 x 9.0 in.)		195 x 409 x 278 mm (7.7 x 16.1 x 10.9 in.)	
Weight	0.53 kg (1.2 lbs) without batteries		2.4 kg (5.29 lbs.)	



# Lico Spectral Colorimeters

## Competence in Color

The spectral color measurement of clear liquids is indispensable in many fields and serves as a quality assurance method for solvents, paints and pharmaceuticals. The highest measuring reliability is essential. Hach® ensures simple, fast measurements for the user. More than 25 years of expertise in the development of colorimeters have gone into the Lico line of instruments.

### All important color scales included in one instrument

The Lico 620 with up to 5 color scales is designed for fast routine measurements in the laboratory and in production facilities. It is already in use in a wide variety of areas in the chemical industries for quality and production control, e.g. to assess surfactants, oils, fats, resins and synthetic resins.

The Lico 690 Spectral Colorimeter is flexible to use and works with many applications, such as chemical, pharmaceuticals, oil industries and the food and beverage industry. 26 color scales are directly integrated in the instrument: conventional scales like iodine, Hazen (Pt Co), Gardner, EP, USP and ChP Pharmacopoeias as well as specific scales like Saybolt or ASTM.

### Simple integration into the laboratory network through Ethernet connection

Lico instruments can be easily integrated to existing laboratory networks through an Ethernet interface.

### High level of measurement reliability through a comprehensive set of test aids

Certified test filters, reproducible standard color solutions and an integrated implementation of AQA (Analytical Quality Assurance) ensure optimum measurement reliability. Measured values can be evaluated in all scales, even post-measurement with archived spectral data.

### Easy handling

The measurement process starts automatically when the sample cell is inserted, and the measurement vial is identified by the instrument. The easy-to-change cell compartment facilitates cleaning and/or replacement. The operation of the Lico colorimeters requires only minimum training effort thanks to clear instructions on the color touch-screen.



### Technical Data\*

Model	Lico 620	Lico 690
Color Scales	DIN 6162 iodine; ISO 6271 Hazen (Pt/Co, APHA, ASTM D1209, D5386); ISO 4630 Gardner (ASTM D1544, D6045); ASTM D 156 Saybolt; ASTM D 1500 mineral oil	European, US and Chinese Pharmacopoeia (EP, USP, CP); DIN 6162 Iodine; ISO 6271 Hazen (Pt/Co, APHA, ASTM D1209, D5386); ISO 4630 Gardner (ASTM D1544, D6045, D6166); ISO 27608 Animal and Vegetable Fats and Oils; ISO 11664 Colorimetry; ASTM E308 CIE Color; ASTM D156 Saybolt; ASTM D1500 Mineral Oil (ISO 2049); ASTM D848 Acid Wash Test; ASTM D1925 Yellowness Index (ASTM D5386); AOCS Cc13e, BS 684 Ly/Lr; ADMI, ICUMSA, EBC, ASBC, Hess-Ives
Memory	400 color readings	100 color references; 1000 photometric values; 20 wavelength scans; 20 time scans; 3000 color readings
Spectral scan	No	Yes (320 nm - 1100 nm)
Sipper (optional)	No	Yes
Display	TFT WGA color graphic touch-screen	
Display Size	17.8 cm (7 in.)	
Optical System	0° / 180° rectilinear	
Source Lamp	Tungsten halogen lamp	
Wavelength Range	380 nm - 720 nm used for colorimetric calculations	
Dimensions (H x W x D)	151 x 350 x 255 mm (5.9 x 13.8 x 10.0 in.)	
Power Requirements (Voltage)	100 - 240 VAC	

\*Subject to change without notice.

### Order Information

**LMV187.53.20001** Lico 620 Colorimeter for up to five color scales

**LMV187.53.40001** Lico 690 Professional Spectral Colorimeter with more than 25 color scales included

*Each Lico instrument comes with a power supply, a printed basic user manual, a 10 mm cell adapter, and a dust cover.*

### Accessories & Replacement Parts

**LZM282-US** Set of 6 certified standard color solutions

**LZM339** Lico test filter set

**LZM369** Adapter for cuvettes Z (Lico 6xx)

**LYY214** Disposable sample cells, 10 x 10 mm, plastic, pk/1000

**LYY621** Disposable sample cells, round, 11 mm, pk/560

**LZM130** Sample cells, rectangular, 50 x 10 mm, plastic, pk/50

Learn More





# Lab Electrochemistry

Introduction

Buffer & Standard Solutions

HQD Benchtop Meters

HQ Series Portable Meters

Intellical Probes

LBOD Probe

BODTrak II Apparatus

Titralab Automatic Titrators

Pocket Pro Testers



Be Right™

# Electrochemistry - Lab and Field

## Meters, probes and calibration solutions for laboratory and field use

The Hach electrochemistry portfolio provides the right solution for your testing needs, backed by years of innovation and technical support. Whether you require a simple, dedicated pH meter and electrode or an advanced, expandable, multi-parameter system, Hach has your answer.



### Smart Intellical Probes

Standard lab probes and rugged field probes are available to measure a wide variety of parameters such as pH, Dissolved Oxygen (DO), Conductivity, Fluoride, Sodium, etc.

All Intellical probes are automatically recognized by HQ/HQD meters and maintain calibration data on the probe itself – eliminating the need of recalibration when switching probes between meters.

### Red Rod Technology

For high volume labs or applications where performance is critical, Intellical Red Rod pH electrodes incorporate proven technology to deliver superior accuracy and response times, even when measuring challenging samples over a wide temperature range. Several probes use speciality designs for specific measurement applications.

### ISO 17034 Standards

Hach Lange GmbH is accredited by the German accreditation authority DAkkS as registered reference material producer according to DIN EN ISO 17034:2017. Compared to ISO 17025, ISO 17034 has an additional requirement for reliable and traceable manufacturing of products. With that, those standards deliver the highest level of quality assurance possible to provide full confidence to the user.

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# Certified Buffer and Standard Solutions

## ISO reference materials to achieve your standards

DIN EN ISO 17034:2017 is the internationally most recognized accreditation to produce Certified Reference Materials (CRM). Since 2022 Hach provides ISO 17034 certified standards for pH and Conductivity.

The requirements included in the accreditation, guarantee to have control throughout the complete product life cycle. From raw materials, to production planning and control, traceability, stability studies, as well as packaging and documentation management—we care.

With that, those standards deliver the highest level of quality assurance possible to provide full confidence to the user.

Hach Lange GmbH is accredited by the German accreditation authority DAkkS as registered reference material producer according to DIN EN ISO 17034:2017. Compared to ISO 17025, ISO 17034 has an additional requirement for reliable and traceable manufacturing of products.

## Be confident in your analysis

Hach's certified analytical standards are made in a way that they are completely reliable to ensure that your instruments are perfectly calibrated and deliver the most accurate results. A team of dedicated experts is ready to support your analysis and to provide technical documentation. You can save valuable time by using already prepared standard solutions that are produced and qualified on the highest level.

## Quality assured

Hach standard solutions are certified for consistency, in accordance to the high standards in production, materials and quality control.



## Order Information

<b>S11M001</b>	pH 1.679 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S11M002</b>	pH 4.005 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S11M003</b>	pH 6.865 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S11M004</b>	pH 7.000 Certified Reference Material CRM Buffer Standard Solution, 500 mL
<b>S11M005</b>	pH 7.413 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S11M006-US</b>	pH 9.180 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S11M007</b>	pH 10.012 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S11M008</b>	pH 12.45 Certified Reference Material CRM Buffer Standard Solution, IUPAC, 500 mL
<b>S51M001</b>	111.3 mS/cm Certified Reference Material CRM OIML Conductivity Standard Solution, KCl 1D, 500 mL
<b>S51M002</b>	12.85 mS/cm Certified Reference Material CRM OIML Conductivity Standard Solution, KCl 0.1D, 500 mL

<b>S51M003</b>	1408 $\mu$ S/cm Certified Reference Material CRM OIML Conductivity Standard Solution, KCl 0.01D, 500 mL
<b>S51M004</b>	1015 $\mu$ S/cm Certified Reference Material CRM Conductivity Standard Solution, 0.05% NaCl, 500 mL
<b>S51M013</b>	25 $\mu$ S/cm Certified Reference Material CRM Conductivity Standard Solution, NaCl, 250 mL



Each 500 mL standard is delivered in an airtight aluminum bag package ensuring safe storage. Until first opening the certified value is guaranteed for 2 years from the date of issue of the certificate. The 250 mL standard comes in a glass bottle with 1 year shelf-life until opening.

Learn More



# pH Buffers and Standard Solutions

## pH Buffer Pillows

Buffers with pH values of 4.01, 7.00, and 10.01 are color-coded for added convenience. pH is  $\pm 0.02$  at 25 °C. Buffer pillows assure freshness and eliminate the possibility of contamination. Simply open the pillow and add the contents to 50 mL of deionized or demineralized water. Powder buffers assure accuracy ( $\pm 0.02$  pH units) and are NIST traceable.

Prod. No.	Color-Coded	pH Value(s)	Quantity
2226995	Red	4.01 $\pm 0.02$ pH at 25°C	15 pcs
2226966	Red	4.01 $\pm 0.02$ pH at 25°C	50 pcs
2226964	Red	4.01 $\pm 0.02$ pH at 25°C	250 pcs
2227095	Yellow	7.00 $\pm 0.02$ pH at 25°C	15 pcs
2227066	Yellow	7.00 $\pm 0.02$ pH at 25°C	50 pcs
2227064	Yellow	7.00 $\pm 0.02$ pH at 25°C	250 pcs
2227195	Blue	10.01 $\pm 0.02$ pH at 25°C	15 pcs
2227166	Blue	10.01 $\pm 0.02$ pH at 25°C	50 pcs
2227164	Blue	10.01 $\pm 0.02$ pH at 25°C	250 pcs
2299264	Red & Yellow	4.01 & 7.00 $\pm 0.02$ pH at 25°C	30 pcs
1405566	Colorless	6.00 $\pm 0.02$ pH at 25°C	50 pcs
1409895	Colorless	6.86 $\pm 0.02$ pH at 25°C	15 pcs
1407995	Colorless	8.00 $\pm 0.02$ pH at 25°C	15 pcs
1410766	Colorless	9.00 $\pm 0.02$ pH at 25°C	50 pcs
2657364	pH Storage Solution Pillows		20 pcs

## pH Buffer Solutions

Prod. No.	Color-Coded	pH Value(s)	Quantity
2283436	Red	4.01 $\pm 0.02$ pH at 25°C	15 mL
2283426	Red	4.01 $\pm 0.02$ pH at 25°C	50 mL
2283449	Red	4.01 $\pm 0.02$ pH at 25°C	500 mL
2283456	Red	4.01 $\pm 0.02$ pH at 25°C	4 L
2283461	Red	4.01 $\pm 0.02$ pH at 25°C	20 L
2283536	Yellow	7.00 $\pm 0.02$ pH at 25°C	15 mL
2283526	Yellow	7.00 $\pm 0.02$ pH at 25°C	50 mL
2283549	Yellow	7.00 $\pm 0.02$ pH at 25°C	500 mL
2283556	Yellow	7.00 $\pm 0.02$ pH at 25°C	4 L
2283561	Yellow	7.00 $\pm 0.02$ pH at 25°C	20 L
2283636	Blue	10.01 $\pm 0.02$ pH at 25°C	15 mL
2283626	Blue	10.01 $\pm 0.02$ pH at 25°C	50 mL
2283649	Blue	10.01 $\pm 0.02$ pH at 25°C	500 mL
2283656	Blue	10.01 $\pm 0.02$ pH at 25°C	4 L
2283661	Blue	10.01 $\pm 0.02$ pH at 25°C	20 L
1222336	Colorless	4.01 $\pm 0.02$ pH at 25°C	15 mL
1222349	Colorless	4.01 $\pm 0.02$ pH at 25°C	500 mL
1222356	Colorless	4.01 $\pm 0.02$ pH at 25°C	4 L
1222249	Colorless	7.00 $\pm 0.02$ pH at 25°C	500 mL
1222256	Colorless	7.00 $\pm 0.02$ pH at 25°C	4 L
1222149	Colorless	10.01 $\pm 0.02$ pH at 25°C	500 mL
1222156	Colorless	10.01 $\pm 0.02$ pH at 25°C	4 L
S11M009	Colorless	1.09 $\pm 0.02$ pH at 25°C	500 mL
S11M010	Colorless	4.65 $\pm 0.02$ pH at 25°C	500 mL
S11M011	Colorless	9.23 $\pm 0.02$ pH at 25°C	500 mL

## Save when you purchase pH Buffer 3-Packs!

2507300	Red, Yellow & Blue	4.01, 7.00 & 10.01 $\pm 0.02$ pH at 25°C	3 pk of 20 L
2507200	Red, Yellow & Blue	4.01, 7.00 & 10.01 $\pm 0.02$ pH at 25°C	3 pk of 4 L
2947600	Red, Yellow & Blue	4.01, 7.00 & 10.01 $\pm 0.02$ pH at 25°C	3 pk of 500 mL

## Singlet pH Solution Packs

Singlet single-use standard solutions are ideal for on-site analysis, eliminating the need to prepare standardized buffer solutions for pH and conductivity buffers or standard solutions without having to purchase and carry deionized or demineralized water. The convenient foil-pouch packaging maintains freshness, and keeps the solutions contaminant-free and ready to travel with you anywhere. pH is  $\pm 0.02$  at 25 °C.

2769820	Yellow & Blue	7.00 & 10.01 $\pm 0.02$ pH at 25°C	20 pcs
2769920	Red & Yellow	4.01 & 7.00 $\pm 0.02$ pH at 25°C	2 pks of 10 pcs
2770020	Red	4.01 $\pm 0.02$ pH at 25°C	20 pcs
2770120	Yellow	7.00 $\pm 0.02$ pH at 25°C	20 pcs
2770220	Blue	10.01 $\pm 0.02$ pH at 25°C	20 pcs

## Beakers

SM5010	Beaker for Electrode/Sensor Calibration, colourless, 30 mL, pk/80
SM5011	Beaker for pH Electrode Calibration, Red, 30 mL, pk/80
SM5012	Beaker for pH Electrode Calibration, Yellow, 30 mL, pk/80
SM5013	Beaker for pH Electrode Calibration, Blue, 30 mL, pk/80
SM5014	Beaker for pH Electrode Calibration, Green, 30 mL, pk/80



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# Standard Solutions & Reagents

## Storage and Cleaning Solutions

<b>2756559</b>	pH Storage Solution (3M Potassium Chloride), 50 mL
<b>2756549</b>	pH Storage Solution (3M Potassium Chloride), 500 mL
<b>2965249</b>	Electrode Cleaning Solution, 500 mL
<b>2964349</b>	ISFET Probe Cleaning Solution for proteins, 500 mL
<b>2756526</b>	pH Electrode Storage Solution, 50 mL pour-top
<b>2964449</b>	pH Electrode Rinse Solution, Non-ionic Surfactant, 500 mL
<b>2975149</b>	Acid Electrode Cleaning Solution, 500 mL
<b>S16M001</b>	Electrode Cleaning solution, RENOVO.N, for Clean Water Samples, 250 mL
<b>S16M002</b>	Electrode Cleaning solution, RENOVO.X extra strong, 250 mL
<b>C20C370</b>	Electrode Cleaning Solution for Proteins/Organics Samples, 250 mL
<b>C20C380</b>	Electrode Cleaning Solution for Porous Pin/Diaphragm Junction, 250 mL

## BOD Nutrients and Seed Inoculum

<b>1416066</b>	BOD Nutrient Buffer Pillows, prepares 300 mL, 50/pk
<b>1486166</b>	BOD Nutrient Buffer Pillows, prepares 3 L, 50/pk
<b>1486266</b>	BOD Nutrient Buffer Pillows, prepares 6 L, 50/pk
<b>1486398</b>	BOD Nutrient Buffer Pillows, prepares 19 L, 25/pk
<b>253335</b>	Nitrification Inhibitor for BOD, formula 2533, TCMP, 35 g
<b>253334</b>	Nitrification Inhibitor for BOD, formula 2533, TCMP, 500 g
<b>2918700</b>	BOD Seed Inoculum, Polyseed, 50 capsules

## KCl Conductivity Standards

### 50 mL

<b>2974226</b>	74.55 mg/L (0.0001M) KCl (146.9 $\mu$ S/cm), 50 mL pour-top
<b>2974326</b>	745.5 mg/L (0.01M) KCl (1412 $\mu$ S/cm), 50 mL pour-top
<b>2974426</b>	7455 mg/L (0.1M) KCl (12.89 mS/cm), 50 mL pour-top

### 500 mL

<b>C20C250</b>	12.88 mS/cm $\pm$ 1% KCl (0.1M), 500 mL
<b>C20C270</b>	1413 $\mu$ S/cm $\pm$ 1% KCl (0.01M), 500 mL
<b>C20C280</b>	146.9 $\mu$ S/cm $\pm$ 2.5% KCl (0.001M), 500 mL
<b>2974249</b>	74.55 mg/L (0.001M) KCl (146.9 $\mu$ S/cm), 500 mL
<b>2974349</b>	745.5 mg/L (0.01M) KCl (1412 $\mu$ S/cm), 500 mL
<b>2974449</b>	7455 mg/L (0.1M) KCl (12.89 mS/cm), 500 mL
<b>2714349</b>	35 g/L KCl (53.0 mS/cm), 35 ppt Salinity, 500 mL

## NaCl Conductivity Standards

### 50 mL

<b>2971826</b>	49 mg/L NaCl (100 $\mu$ S/cm), 50 mL pour-top
<b>1440026</b>	491 mg/L NaCl (1000 $\mu$ S/cm), 50 mL pour-top
<b>2972226</b>	5.37 g/L NaCl (10,000 $\mu$ S/cm), 50 mL pour-top
<b>2307426</b>	10,246 mg/L NaCl (18,000 $\mu$ S/cm), 50 mL pour-top

### 100 mL

<b>210542</b>	1990 $\mu$ S/cm, NaCl, 100 mL
<b>2307542</b>	85.47 mg/L NaCl, (180 $\mu$ S/cm), 100 mL
<b>1440042</b>	491 mg/L NaCl, (1000 $\mu$ S/cm), 100 mL
<b>2307442</b>	10,246 mg/L NaCl, (18,000 $\mu$ S/cm), 100 mL

### 500 mL

<b>2971849</b>	49 mg/L NaCl, (100 $\mu$ S/cm), 500 mL
<b>1440049</b>	491 mg/L NaCl (1000 $\mu$ S/cm), 500 mL
<b>2972249</b>	5366 mg/L NaCl, (10,000 $\mu$ S/cm), 500 mL

## Natural Water Conductivity Solutions

<b>2974826</b>	442-3000 Natural Water Standard Solution, 3000 ppm TDS (3960 $\mu$ S/cm), 50 mL pour-top
<b>2974549</b>	442-30 Natural Water Standard Solution, 30 ppm TDS (46.7 $\mu$ S/cm), 500 mL
<b>2974649</b>	442-300 Natural Water Standard Solution, 300 ppm TDS (445 $\mu$ S/cm), 500 mL
<b>2974749</b>	442-1000 Natural Water Standard Solution, 1000 ppm TDS (1417 $\mu$ S/cm), 500 mL
<b>2974849</b>	442-3000 Natural Water Standard Solution, 3000 ppm TDS (3960 $\mu$ S/cm), 500 mL

## ORP Standards and Solutions

<b>2316949</b>	ZoBell's Standard Solution, 500 mL
<b>2612520</b>	Light's Standard Solution in sealed ampules, 25/pk
<b>2965349</b>	Reducing Solution for ORP Electrodes For use with reducing (negative mV) sample matrices

## Electrode Filling Solutions and Cartridges

<b>25118049</b>	Red Rod Filling Solution, Saturated KCl, 500 mL
<b>25118026</b>	Red Rod Filling Solution, Saturated KCl, 59 mL
<b>2546902</b>	KCl Reference Electrolyte Gel Cartridges, 2/pk
<b>2965026</b>	PHC281 Filling Solution, 2.44 M Viscous KCl, 59 mL
<b>2965126</b>	ISENA381 Filling Solution, 0.02 M $\text{NH}_4\text{Cl}$ , 59 mL
<b>2841700</b>	MTC301 and PHC301 Filling Solution, 3.0 M KCl with Ag/Cl, 28 mL

## Calcium Standard Solutions

<b>2305442</b>	10 mg/L Ca, 100 mL
<b>4457649</b>	100 mg/L Ca, 500 mL
<b>2240349</b>	1000 mg/L Ca, 500 mL

## Chloride Standard Solutions

<b>2370853</b>	100 mg/L $\text{Cl}^-$ , 1 L
<b>18349</b>	1000 mg/L $\text{Cl}^-$ , 500 mL

## Fluoride Standard Solutions (NIST) + ISA

<b>40505</b>	0.5 mg/L F, 500 mL
<b>29149</b>	1.0 mg/L F, 500 mL
<b>29153</b>	1.0 mg/L F, 1 L
<b>40520</b>	2.0 mg/L F, 500 mL
<b>2797149</b>	5.0 mg/L F, 500 mL
<b>35949</b>	10 mg/L F, 500 mL
<b>23249</b>	100 mg/L F, 500 mL
<b>258901</b>	Fluoride Ionic Strength Adjustor (ISA), Powder, 454 g
<b>258999</b>	Fluoride Ionic Strength Adjustor (ISA) Powder Pillows, 100/pk
<b>2829017</b>	Fluoride Ionic Strength Adjustor (ISA), 3.78 L

## Nitrogen-Ammonia Standard Solutions + ISA

<b>189149</b>	1 mg/L as $\text{NH}_3\text{-N}$ , 500 mL
<b>15349</b>	10 mg/L as $\text{NH}_3\text{-N}$ , 500 mL
<b>1479120</b>	50 mg/L as $\text{NH}_3\text{-N}$ , 20x 2-mL PourRite Ampules
<b>1479110</b>	50 mg/L as $\text{NH}_3\text{-N}$ , 16x 10-mL Voluette Ampules
<b>2406549</b>	100 mg/L as $\text{NH}_3\text{-N}$ , 500 mL
<b>4447169</b>	Ammonia Ionic Strength Adjustor (ISA) Powder Pillows, 100/pk

## Nitrogen-Nitrate Standard Solutions + ISA

<b>204649</b>	1 mg/L as $\text{NO}_3\text{-N}$ , 500 mL
<b>2557810</b>	5 mg/L as $\text{NO}_3\text{-N}$ , 16x 10-mL Voluette Ampules
<b>30749</b>	10 mg/L as $\text{NO}_3\text{-N}$ , 500 mL
<b>2415132</b>	15 mg/L as $\text{NO}_3\text{-N}$ , 100 mL
<b>194749</b>	100 mg/L as $\text{NO}_3\text{-N}$ , 500 mL
<b>1426010</b>	500 mg/L as $\text{NO}_3\text{-N}$ , 16x 10-mL Voluette Ampules
<b>1279249</b>	1000 mg/L as $\text{NO}_3\text{-N}$ , 500 mL
<b>4456369</b>	Nitrate Ionic Strength Adjustor (ISA) Powder Pillows, 100/pk

## Potassium Standard Solution

<b>2351749</b>	100 mg/L $\text{K}^+$ , 500 mL
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## Sodium Electrode Storage Solution

<b>4451659</b>	Sodium Electrode Storage Solution, 50 mL
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## Sodium Standard Solutions + ISA

<b>2835153</b>	10 mg/L $\text{Na}^+$ , 1 L
<b>2318153</b>	100 mg/L $\text{Na}^+$ , 1 L (NIST)
<b>1474949</b>	1000 mg/L $\text{Na}^+$ , 500 mL (NIST)
<b>4451569</b>	Sodium Ionic Strength Adjustor (ISA) Powder Pillows, 100/pk

# HQD Benchtop E-Chem Meters



Take the guesswork out of measurements with Hach HQD laboratory meters. All HQD meters feature an advanced yet simple user interface that does not require manuals or training to operate.

Measurement data can be stored and transferred to a printer, PC or USB storage device

## About HQD and Intellical Probes

HQD meters connect with digital Intellical probes and automatically recognize the testing parameter, calibration history and method settings to minimize errors and setup time.

Intellical Red Rod pH electrodes offer exceptional performance and response time across a wide variety of sample types. The LBOD probe utilizes optical technology to provide fast, accurate Dissolved Oxygen (DO) measurements while dramatically reducing maintenance costs.

Additional probes for Conductivity, Total Dissolved Solids (TDS), Ammonia, Ammonium, Fluoride, Nitrate, Sodium, and RedOx (ORP) measurements complete the Intellical portfolio.

## HQD Series Meters are Available in Three Models:

- HQ411D - pH/mV/ORP (RedOx)
- HQ430D - Multi-parameter, single probe input
- HQ440D - Multi-parameter, dual probe inputs

## Key Features Common to All Models:

- Designed for drinking water and wastewater professionals.
- Automatic probe and parameter recognition.
- Instrument guided calibration procedures.
- Calibration data stored in the probe.
- Probe specific method settings for regulatory compliance and Good Laboratory Practice (GLP).
- Real-time data logging with a USB connection.
- Bi-directional communication with PC-based systems with a virtual serial port connection.
- Sample ID and Operator ID for data traceability.
- Adjustable automatic shut-off.
- Durable, robust design to withstand years of use.

Learn More





## Technical Data\*

Model	HQ411D – pH/1 Channel	HQ430D – Multi/1 Channel	HQ440D – Multi/2 Channels
Temperature	•	•	•
pH	•	•	•
ORP	•	•	•
Conductivity		•	•
TDS		•	•
Salinity		•	•
Resistivity		•	•
Dissolved Oxygen (LDO)		•	•
Ammonia/Ammonium		•	•
Chloride		•	•
Fluoride		•	•
Nitrate		•	•
Sodium		•	•
IP Rating	IP54 (Resistant to spray of water; Dust-proof)		
Data Memory	500 records/FIFO		
Backlight	Yes		
GLP Features	Date; Time; Sample ID; Operator ID		
Communication	Integrated USB type A (for USB 2.0 flash memory device, printer, keyboard) and Integrated USB type B (for PC)		

\*Subject to change without notice.

## Order Information

Prod. No.	Parameter	Model
<b>HQ411D</b>	pH/Oxydo Reduction Potential (ORP)	HQ411D – pH/1 Channel
<b>HQ430D</b>	pH/Oxydo Reduction Potential (ORP) Conductivity/Total Dissolved Solid (TDS)/Salinity/Resistivity Dissolved Oxygen (DO) Biochemical Oxygen Demand (BOD) Ion Selective Electrode (ISE): Ammonia, Ammonium, Chloride, Fluoride, Nitrate, Sodium	HQ430D – Multi/1 Channel
<b>HQ440D</b>	pH/Oxydo Reduction Potential (ORP) Conductivity/Total Dissolved Solid (TDS)/Salinity/Resistivity Dissolved Oxygen (DO) Biochemical Oxygen Demand (BOD) Ion Selective Electrode (ISE): Ammonia, Ammonium, Chloride, Fluoride, Nitrate, Sodium	HQ440D – Multi/2 Channels



Part numbers may vary by country.

Sensor Kits are available, please visit [hach.com](http://hach.com) or contact Hach for further information.

# HQ Series Portable Meters

**A robust and intuitive range of portable meters, instilling confidence in reporting and managing your results.**



## Performing a successful calibration has never been so simple

Most measuring issues are due to incorrect calibration procedures. With our illustrated, step-by-step on-screen calibration and troubleshooting procedures, water quality professionals can succeed every time.

## Deliver your daily activity in just a few clicks

Whether you are at your facility or working in the field, the Hach® HQ Series portable meter ensures your data will be safely transferred via USB.

## Sensors designed for every application

We offer standard laboratory and rugged field Intellical™ smart sensors available with the HQ Series to measure a wide variety of parameters including Total Dissolved Solids (TDS), Optical Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Temperature, Conductivity, and pH. Intellical smart probes are automatically recognized by HQ meters, retain calibration history and method settings to minimize errors and setup time. They incorporate proven technology to deliver superior accuracy and response times – even when measuring challenging samples or challenging operating environments.

## Peace of mind: Hach service and support will be there for you

Our Technical Support, Field Service, and Central Service Teams work together with over 90 years of electrochemistry expertise to help you maximize instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk. Never feel alone when you need support.

**Learn More**



## Parameter Table\*

Model	HQ1110 pH/ ORP/ 1 Channel	HQ1130 DO/ 1 Channel	HQ1140 EC/ TDS/ 1 Channel	HQ2100 Multi/ 1 Channel	HQ2200 Multi/ 2 Channels	HQ4100 Multi/ISE/ 1 Channel	HQ4200 Multi/ISE/ 2 Channels	HQ4300 Multi/ISE/ 3 Channels
Temperature	•	•	•	•	•	•	•	•
pH	•			•	•	•	•	•
mV	•			•	•	•	•	•
Conductivity			•	•	•	•	•	•
TDS			•	•	•	•	•	•
Salinity			•	•	•	•	•	•
Resistivity				•	•	•	•	•
Dissolved Oxygen (LDO)		•		•	•	•	•	•
BOD (with LDO)		•		•	•	•	•	•
ORP/Redox	•			•	•	•	•	•
Ammonia						•	•	•
Ammonium						•	•	•
Chloride						•	•	•
Fluoride						•	•	•
Nitrate						•	•	•
Sodium						•	•	•

\*Subject to change without notice.

## Order Information

## HQ Series Portable Standard Sensor Kits

- LEV015.53.11101** HQ1110 Portable Dedicated pH/ORP/mV Meter with Gel pH Electrode, 1 m Cable
- LEV015.53.22004** HQ2200 Portable Multi-Meter with pH and Dissolved Oxygen Electrodes, 1 m Cables
- LEV015.53.11301** HQ1130 Portable Dedicated Dissolved Oxygen Meter with Dissolved Oxygen Electrode, 1 m Cable
- LEV015.53.42001** HQ4200 Portable Multi-Meter with Gel pH and Conductivity Electrode, 1 m Cables
- LEV015.53.42005** HQ4200 Portable Multi-Meter with Gel pH and Dissolved Oxygen Electrode, 1 m Cables
- LEV015.53.43001** HQ4300 Portable Multi-Meter with Gel pH, Conductivity, and Dissolved Oxygen Electrode, 1 m Cable

## HQ Series Portable Rugged Sensor Kits

- LEV015.53.11103** HQ1110 Portable Dedicated pH/ORP/mV Meter with Gel pH Electrode, 5 m Rugged Cable
- LEV015.53.11302** HQ1130 Portable Dedicated Dissolved Oxygen Meter with Dissolved Oxygen Electrode, 5 m Rugged Cable
- LEV015.53.22006** HQ2200 Portable Multi-Meter with pH and Dissolved Oxygen Electrode, 5 m Rugged Cables
- LEV015.53.42006** HQ4200 Portable Multi-Meter with Gel pH and Dissolved Oxygen Electrode, 5 m Rugged Cables
- LEV015.53.42003** HQ4200 Portable Multi-Meter with Gel pH and Conductivity Electrode, 5 m Rugged Cables

*Additional Standard and Rugged Sensor Kits are available.  
Please contact Hach for more information.*

## Accessories and Consumables

- LEZ015.99.A001A** Portable HQ Series Standard Field Case for Standard Probes
- LEZ015.99.A002A** Portable HQ Series Field Case for Rugged Probes with Extended Cable Lengths
- LEZ015.99.A003A** Kick Stand and Hand Strap for Portable HQ Series Meter
- LEZ015.99.A004A** Protective Glove for Portable HQ Series Meter
- LEZ015.99.A005A** Wrist Strap and Dust Plugs for Portable HQ Series Meter
- LEZ015.99.00001** Li-Ion Battery Replacement, HQ Series Meter
- LEZ015.99.00002** USB Cable for Portable HQ Series Meter
- LEZ015.99.00006** Replacement Power Supply for HQ Series Meter, US
- LEZ015.99.00004** Replacement Power Supply for HQ Series Meter, EU



# Intellical Probes



Choose from a broad selection of Intellical probes to meet your most demanding laboratory and field applications, for parameters such as pH, Dissolved Oxygen (DO), Conductivity, Total Dissolved Solids (TDS), Ammonia, Ammonium, Chloride, Fluoride, Nitrate, Sodium, Biochemical Oxygen Demand (BOD) and RedOx (ORP).

All Intellical probes are automatically recognised by HQ/HQD meters and maintain calibration data on the probe itself—eliminating the need of recalibration when switching probes between meters.





## Probes for Every Application

- For high-volume labs or applications where performance is critical, Intellical Red Rod pH probes offer exceptional performance and response time across a wide variety of sample types in the laboratory.
- Standard lab probes and rugged field probes are available to measure a wide variety of parameters and are extremely practical for on-site analysis. Thanks to the digital technology, they can be used with cables up to 30 metres long.
- The LBOD probe utilises optical technology to provide fast, accurate DO measurements while dramatically reducing maintenance costs.

### Key Features:





- Designed for water & industrial QC testing.
- Smart sensors embedding calibration data and history.
- Complete portfolio for Laboratory and field use.






## Intellical Probes - pH

				
Model	PHC101 Laboratory Cable Length: 1 m or 3 m	PHC101 Rugged Field Cable Length: 5, 10, 15, or 30 m	PHC108 Laboratory Cable Length: 1 m	PHC201 Laboratory Cable Length: 1 m or 3 m
Application	Clean & Dirty Samples	Clean & Dirty Samples	Piercing / Semi-Solids	Clean Samples
Electrode Type	Non-Refillable Gel Reference Element	Non-Refillable Gel Reference Element	Non-Refillable Gel Reference Element	Non-Refillable Gel Reference Element, semi-liquid gel
Range	2 - 14 pH	2 - 14 pH	2 - 12 pH	0 - 14 pH
Accuracy	±0.02 pH	±0.02 pH	±0.02 pH	±0.02 pH
Temperature Range	0 - 50 °C (32 - 122 °F)	0 - 50 °C (32 - 122 °F)	0 - 60 °C (32 - 140 °F)	0 - 80 °C (32 - 176 °F)
Sensor material	Epoxy	Zeonor™/ Stainless Steel	Stainless Steel	Epoxy
Special Features	Double junction reference	Double junction reference	For semi-solid media/samples	General purpose. Clean water samples.
Sample Depth	20 mm	20 mm	15 mm	15 mm
Prod. No.	PHC10101 PHC10103	PHC10105, PHC10110, PHC10115, PHC10130	PHC10801	PHC20101 PHC20103



# Intellical Probes - pH

				
Model	PHC281 Laboratory Cable Length: 1 m or 3 m	PHC301 Laboratory Cable Length: 1 m or 3 m	PHC705 Laboratory Cable Length: 1 m	PHC705A Laboratory Cable Length: 1 m
Application	Low Ionic Strength Samples	Clean Samples	High Performance (-10 to 100 °C)	High Performance/High Alkalinity
Electrode Type	Refillable Reference Element	Refillable Reference Element	RedRod / Refillable Reference Element	RedRod / Refillable Reference Element
Range	0 - 14 pH	0 - 14 pH	0 - 14 pH	0 - 14 pH
Accuracy	±0.02 pH	±0.02 pH	±0.01 pH	±0.01 pH
Temperature Range	0 - 50 °C (32 - 122 °F)	0 - 50 °C (32 - 122 °F)	-10 - 100 °C (14 - 212 °F)	0 - 100 °C (32 - 212 °F)
Sensor material	Zeonor™	Zeonor™	Glass	Glass
Special Features	Double junction reference	Double junction reference		High-alkalinity samples
Sample Depth	15 mm	15 mm	18 mm	18 mm
Prod. No.	PHC28101 PHC28103	PHC30101 PHC30103	PHC70501	PHC705A01






					
Model	PHC725 Laboratory Cable Length: 1 m	PHC729 Laboratory Cable Length: 1 m	PHC735 Laboratory Cable Length: 1 m	PHC745 Laboratory Cable Length: 1 m	PHC805 Laboratory Cable Length: 1 m
Application	Low Ionic Strength & Dirty Samples - Annular Ring	Surface Measurement	Very Dirty Samples	Extremely Dirty Samples	High Performance (0 to 80 °C)
Electrode Type	RedRod / Refillable Reference Element	RedRod / Refillable Reference Element	RedRod / Refillable Reference Element / High Flow	RedRod / Refillable Reference Element / High Flow	RedRod / Refillable Reference Element
Range	0 - 14 pH	0 - 12 pH	0 - 14 pH	0 - 14 pH	0 - 14 pH
Accuracy	±0.01 pH	±0.01 pH	±0.01 pH	±0.01 pH	±0.02 pH
Temperature Range	-10 - 100 °C (14 - 212 °F)	-10 - 100 °C (14 - 212 °F)	-10 - 100 °C (14 - 212 °F)	-10 - 100 °C (14 - 212 °F)	0 - 80 °C (32 - 176 °F)
Sensor material	Glass	Glass	Glass	Glass	Glass
Special Features	Low Ionic Strength Media	Surface Measurements	Dirty Media	Clogging Media	
Sample Depth	14 mm	1 mm	14 mm	18 mm	18 mm
Prod. No.	PHC72501 PHC72501AP*	PHC72901 PHC72901AP*	PHC73501 PHC73501AP*	PHC74501 PHC74501AP*	PHC80501 PHC80501AP*

\*AP=Application Package, includes probe and reagents

Learn More



## Intellical Probes - ORP


					
Model	MTC101 Laboratory Cable Length: 1 m or 3 m	MTC101 Rugged Field Cable Length: 5, 10, 15, or 30 m	MTC301 Laboratory Cable Length: 1 m or 3 m	MTC306 Laboratory Cable Length: 1 m	MTC695 Laboratory Cable Length: 1 m
Electrode Type	Non-Refillable Gel Reference Element	Non-Refillable Gel Reference Element	Refillable Reference Element	Metal RedOx Titration, Pt/Ref	Metal RedOx Titration, Pt-Pt
Range	±1200 mV	±1200 mV	±1200 mV	±1200 mV	±1200 mV (±200 µA)
Accuracy	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater		
Temperature Range	0 - 80 °C (32 - 176 °F)	0 - 80 °C (32 - 176 °F)	0 - 80 °C (32 - 176 °F)	0 - 80 °C (32 - 176 °F)	-10 - 80 °C (14 - 176 °F)
Sensor material	Epoxy	Epoxy / Stainless Steel	Epoxy	Epoxy	Epoxy
Special Features	Flat disc sensor for easy cleaning.	Flat disc sensor for easy cleaning.	Flat disc sensor for easy cleaning.	Argentometric Silver nitrate) Titration	Imposed current Redox Titration
Sample Depth	20 mm	20 mm	20 mm	20 mm	10 mm
Prod. No.	MTC10101 MTC10103	MTC10105, MTC10110, MTC10115, MTC10130	MTC30101 MTC30103	MTC30601	MTC69501

## Intellical Probes - ISE

						
Model	ISECL181 Laboratory Cable Length: 1 m or 3 m	ISEF121 Laboratory Cable Length: 1 m or 3 m	ISENA381 Laboratory Cable Length: 1 m or 3 m	ISENH318 Laboratory Cable Length: 1 m or 3 m	ISENH418 Laboratory Cable Length: 1 m or 3 m	ISENO318 Laboratory Cable Length: 1 m or 3 m
Parameter	Chloride	Fluoride	Sodium	Ammonia	Ammonium	Nitrate
Electrode Type	Non-Refillable Dritek Gel Reference Element	Non-Refillable Dritek Gel Reference Element	Refillable Reference Element	Non-Refillable Gel Reference Element, Replaceable membrane	Non-Refillable Dritek Gel Reference Element	Non-Refillable Dritek Gel Reference Element
Range	0.1 mg/L (3 x 10 <sup>-6</sup> M) - 35.5 g/L (1 M) Cl <sup>-</sup>	0.01 mg/L (5 x 10 <sup>-7</sup> M) - 19 g/L (1 M) F <sup>-</sup>	0.023 mg/L (1 x 10 <sup>-6</sup> M) - 23 g/L (1 M) Na <sup>+</sup>	0.01 mg/L (5 x 10 <sup>-7</sup> M) - 14 g/L (1 M) NH <sub>3</sub> -N	0.018 mg/L (10 <sup>-6</sup> M) - 9 g/L (0.5 M) NH <sub>4</sub> -N	0.1 mg/L (7 x 10 <sup>-6</sup> M) - 14 g/L (1 M) NO <sub>3</sub> -N
Accuracy	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater	±0.02 mV or 0.05%, whichever is greater
Temperature Range	5 - 50 °C (41 - 122 °F)	5 - 50 °C (41 - 122 °F)	0 - 50 °C (32 - 122 °F)	5 - 50 °C (41 - 122 °F)	0 - 50 °C (32 - 122 °F)	0 - 50 °C (32 - 122 °F)
Sensor material	Epoxy	Epoxy	Zeonor™	Epoxy	Epoxy	Epoxy
Special Features	Dry storage & fast response time. No replacement membranes.	Dry storage & fast response time. No replacement membranes.		Easy-to-replace membrane modules.	Dry storage & fast response time. No replacement membranes.	Dry storage & fast response time. No replacement membranes.
Sample Depth	26 mm	26 mm	26 mm	26 mm	26 mm	26 mm
Prod. No.	ISECL18101, ISECL18103, ISECL181AP*	ISEF12101, ISEF12103, ISEF121AP*	ISENA38101, ISENA38103, ISENA381AP*	ISENH318101, ISENH318103, ISENH3181AP*	ISENH418101, ISENH418103, ISENH4181AP*	ISENO318101, ISENO318103, ISENO3181AP*

\*AP=Application Package, includes probe and reagents

# Intellical Probes - Conductivity and Oxygen (LDO)

					
Model	CDC401 Laboratory Cable Length: 1 m or 3 m	CDC401 Rugged Field Cable Length: 5, 10, 15, or 30 m	LDO101 Laboratory Cable Length: 1 m or 3 m	LDO101 Rugged Field Cable Length: 5, 10, 15, or 30 m	LBOD101 Laboratory Cable Length: 1 m
Parameter	Conductivity	Conductivity	Dissolved Oxygen	Dissolved Oxygen	BOD
Electrode Type	Conductivity Cell; 4 Poles - Graphite	Conductivity Cell; 4 Poles - Graphite	Luminescent Dissolved Oxygen	Luminescent Dissolved Oxygen	Luminescent Dissolved Oxygen
Range	Conductivity: 0.0 $\mu\text{S}/\text{cm}$ - 200 $\text{mS}/\text{cm}$ TDS: 0.00 $\text{mg}/\text{L}$ - 50.0 $\text{g}/\text{L}$ as NaCl Salinity: 0 - 42 ppt or ‰ Resistivity: 2.5 $\Omega\text{cm}$ - 49 $\text{M}\Omega\text{cm}$	Conductivity: 0.0 $\mu\text{S}/\text{cm}$ - 200 $\text{mS}/\text{cm}$ TDS: 0.00 $\text{mg}/\text{L}$ - 50.0 $\text{g}/\text{L}$ as NaCl Salinity: 0 - 42 ppt or ‰ Resistivity: 2.5 $\Omega\text{cm}$ - 49 $\text{M}\Omega\text{cm}$	0.05 - 20.0 $\text{mg}/\text{L}$ 1 - 200% saturation	0.05 - 20.0 $\text{mg}/\text{L}$ 1 - 200% saturation	0.05 - 20.0 $\text{mg}/\text{L}$ 1 - 200% saturation
Accuracy	Cond: $\pm 0.5\%$ of reading TDS: $\pm 0.5\% \pm 1$ digit Salinity: $\pm 0.1$ , $\pm 1$ digit	Cond: $\pm 0.5\%$ of reading TDS: $\pm 0.5\% \pm 1$ digit Salinity: $\pm 0.1$ , $\pm 1$ digit	$\pm 0.1$ $\text{mg}/\text{L}$ from 0 to 8 $\text{mg}/\text{L}$ $\pm 0.2$ $\text{mg}/\text{L}$ for greater than 8 $\text{mg}/\text{L}$	$\pm 0.1$ $\text{mg}/\text{L}$ from 0 to 8 $\text{mg}/\text{L}$ $\pm 0.2$ $\text{mg}/\text{L}$ for greater than 8 $\text{mg}/\text{L}$	$\pm 0.05$ $\text{mg}/\text{L}$ from 0 to 10 $\text{mg}/\text{L}$ $\pm 0.1$ $\text{mg}/\text{L}$ for greater than 10 $\text{mg}/\text{L}$
Temperature Range	-10 - 110 $^{\circ}\text{C}$ (14 - 230 $^{\circ}\text{F}$ )	-10 - 110 $^{\circ}\text{C}$ (14 - 230 $^{\circ}\text{F}$ )	0 - 50 $^{\circ}\text{C}$ (32 - 122 $^{\circ}\text{F}$ )	0 - 50 $^{\circ}\text{C}$ (32 - 122 $^{\circ}\text{F}$ )	0 - 50 $^{\circ}\text{C}$ (32 - 122 $^{\circ}\text{F}$ )
Sensor material	Noryl	Noryl / Stainless Steel	Polycarbonate / ABS	Polycarbonate / ABS / Stainless Steel	Polycarbonate / ABS
Special Features					Integrated stirring system.
Sample Depth	45 mm	45 mm	10 mm	10 mm	10 mm
Prod. No.	CDC40101 CDC40103	CDC40105, CDC40110, CDC40115, CDC40130	LDO10101 LDO10103	LDO10105, LDO10110, LDO10115, LDO10130	LBOD10101

## Intellical Accessories

**SM5010** Beaker for Electrode/Sensor Calibration, colourless, 30 mL, pk/80

**SM5011** Beaker for pH Electrode Calibration, Red, 30 mL, pk/80

**SM5012** Beaker for pH Electrode Calibration, Yellow, 30 mL, pk/80

**SM5013** Beaker for pH Electrode Calibration, Blue, 30 mL, pk/80

**SM5014** Beaker for pH Electrode Calibration, Green, 30 mL, pk/80

**8508850** Universal Probe Stand for Standard Intellical Probes

**5818400** Clip a color-coded band to each end of your probe cable for identification. Ten clips of five different colors per package.

*NOTE: One package of clips included with each probe.*

**5825900** Includes protective bell and locking ring. The rugged shroud absorbs the impact from rough wear and tear. NOTE: probe not included.

**5828610** Taking reading at specific depths with rugged probes is a snap with these Depth Markers. Visually identify the depth of your probe by attaching Depth Marker securely on cable at points to meet your needs. Five Depth Markers per package.

*NOTE: For use with rugged probes only.*

**5811200** Intellical Sensor Cap Replacement for LDO Sensor

**5838000** Intellical Sensor Cap Replacement for LBOD101 Sensor

**5812711** Intellical Replacement Membrane Modules for Ammonia ISE, 3 pcs

# Hach LBOD Intellical Probe

## A Breakthrough in BOD Measurement!

Hach LBOD Intellical probe uses patented LDO technology to deliver superior confidence in results!

All the same great benefits of the Hach LDO probe, with the built-in features to measure BOD!

- No membranes to replace.
- Calibration in less than one minute.
- Reliable performance and accurate readings time after time.
- Have confidence in your results!

EPA recommends Hach LDO Method 10360 for use in compliance monitoring!\*

*\*Hach's LDO technology has been approved in numerous states for measuring and reporting Dissolved Oxygen (DO) and BOD. Speak with a Hach representative to learn if your state is approved.*



### Order Information

<b>LBOD10101</b>	Intellical LBOD101 Luminescent/Optical Dissolved Oxygen (LDO) Sensor for BOD Measurements, 1 m Cable
<b>2943100</b>	Disposable BOD Bottles, 300 mL, 100/cs
<b>2943900</b>	Plastic BOD Bottle Stoppers, 25/pk
<b>190901</b>	Stopper, ground-glass for BOD bottles
<b>241906</b>	Bottle, BOD, Cap, 6/pk
<b>253335</b>	Nitrification Inhibitor for BOD, Formula 2533™, TCMP, 35 g
<b>253334</b>	Nitrification Inhibitor for BOD, Formula 2533™, TCMP, 500 g
<b>2918700</b>	BOD Seed Inoculum, Polyseed, pk/50 capsules
<b>2514420</b>	ez GGA - No Pipette GGA, Single Dose BOD Standard, pk/20, 2-mL ampules

<b>2484600</b>	Ampule breakers, media ampules for 2-mL PourRite ampules
<b>1416066</b>	BOD Nutrient Buffer Pillows, concentrate to make 300 mL, 50/pk
<b>1486166</b>	BOD Nutrient Buffer Pillows, 3 mL concentrate to make 3L, 50/pk
<b>2436466</b>	BOD Nutrient Buffer Pillows, 4 mL concentrate to make 4 L, 50/pk
<b>1486266</b>	BOD Nutrient Buffer Pillows, 6 mL concentrate to make 6 L, 50/pk
<b>1486398</b>	BOD Nutrient Buffer Pillows, concentrate to make 19 L, 25/pk

Learn More





# BODTrak II Apparatus

Use the Hach BODTrak II Apparatus for unattended, fast BOD (Biochemical Oxygen Demand) analysis. Features include delayed start for temperature stabilization, continuous data readout, and automatic shut-off.

## Decrease Total Test Time

The Hach BODTrak II Apparatus is easy to set up and allows for quick sample preparation for BOD (Biochemical Oxygen Demand) analysis. Simply pour a measured sample of wastewater and nutrient buffer into each of six BODTrak II bottles. Connect the bottles to the instrument's pressure sensors, select a measurement range, and incubate. User calibration of the instrument is not necessary.

## Faster than Dilution Method

Constant stirring in the bottles supplies additional oxygen to the sample and provides bacteria with greater exposure to food. This results in more rapid respiration and consumption of oxygen.

## BOD Results that are Easy to Monitor

The BODTrak II Apparatus has a large graphic display that continuously updates results. View the results at any time during the test. The instrument plots a curve of BOD over time. To review the data in detail, simply move a cursor along the curve to display results for any stored data point.

## Standalone Operation

The apparatus automatically ends the test and stores the results after the chosen test length of five, seven, or ten days. This eliminates the need to be present when the test is complete.

## DO Probes and Titrations are Eliminated

The BODTrak II Apparatus measures BOD using the respirometric method. Each sample bottle is connected to a pressure sensor in a closed system. As bacteria consume oxygen in the sample, the pressure in the bottle headspace drops. This pressure change correlates directly to BOD. By measuring pressure changes instead of dissolved oxygen levels, the need for probes and titrations is eliminated.



## Order Information

### Apparatus

- 2952400** BODTrak II Apparatus, 115/230 VAC
- Includes North American and continental European power cords, auto-switching power supply, six bottles, six magnetic stir bars, six seal cups, spatula scoop, 50 BOD nutrient buffer pillows, and potassium hydroxide pellets

### Reagents

- 2962266** BOD Nutrient Buffer Pillows, 300 mL, 50/pk
- 31425** Potassium Hydroxide Pellets
- 1486610** BOD Standard Solution; for manometric method, glucose and glutamic acid, 300 mg/L, 10 mL Volute Ampules, 16/pk
- 2952440** Replacement bottle for BODTrak II apparatus

## Technical Data\*

<b>Range</b>	0 - 700 mg/L BOD
<b>Capacity</b>	Six 492 mL bottles
<b>Drift</b>	< 3 mg/L BOD in 5 days
<b>Measurement Method</b>	Manometric
<b>Interface</b>	RS232
<b>Input Voltage</b>	110 - 240 V, 50/60 Hz
<b>Output Voltage</b>	24 V, UL CSA, and TUV approved
<b>Dimensions (H x W x D)</b>	98 x 289 x 260 mm (3.9 x 11.4 x 10.2 in.)
<b>Weight</b>	4 kg (8.82 lbs)

*\*Subject to change without notice.*

## Learn More



# Titralab AT1000 Series Automatic Titrators



## Simply add your sample, press the button and read your titration results

Titration can be easy. The TitrLab AT1000 from Hach uses pre-set functions that eliminate complex programming and provide accurate results.

The Karl Fischer version TitrLab KF1000 requires only small sample quantities to deliver accurate and precise results for water content applications.

**Accurate and Reliable Titration Results**  
**Easy to Use for all Operators**  
**Low Cost of Ownership**  
**Improves Lab Safety**  
**Low Maintenance**

**Learn More**



### Technical Data\*

<b>Titration Types</b>	Potentiometric (zero & imposed current), amperometric, colorimetric	<b>Calibration Curves Display</b>	Direct & derivative titration curves, electrode calibration curve
<b>Titration Modes</b>	Sample, blank, sample with blank, QC sample, QC sample with blank	<b>Supported Peripherals</b>	Printer, PC software, balance, sample changer, keyboard, mouse, barcode reader, sampling pump, propeller stirrer
<b>Parameter</b>	mV/pH, Conductivity, Temperature	<b>Data Storage</b>	Date, Time, Operator IDs, Sample IDs
<b>Resolution</b>	mV/pH: $\pm 0.1$ mV / $\pm 0.001$ pH Conductivity: $\pm 0.5\%$ of reading Temperature: $\pm 0.3$ °C (32.54 °F)	<b>Maintenance Scheduler</b>	Yes, user defined
<b>Sample Stand</b>	Integrated, magnetic stirring, beakers up to 250 mL	<b>Embedded Procedures</b>	Tubing bubble purging, reagent priming, burette and pump replacement
<b>Electrode</b>	IntelliCAL ("Plug & Play" digital), analog, photocolometric; 2 Inputs available	<b>Password Protection</b>	Yes, user defined
<b>Burette: Volumes Available</b>	2.5/5/10/25 mL, ISO8655-3	<b>Languages</b>	English, German, French, Italian, Spanish
<b>Burette Motor Resolution</b>	20,000 steps with electronic $\mu$ stepping technology (128 $\mu$ steps/step)	<b>Dimensions (H x W x D)</b>	220 x 400 x 360 mm (8.66 x 15.75 x 14.17 in.)
<b>Calibration</b>	Titrant & electrode (up to 5 buffers in Auto Mode, fixed & user defined)	<b>Weight</b>	4 kg (8.82 lbs)
<b>Calibration Intervals/Alerts/Reminder</b>	Yes, user defined period	<b>Material Enclosures</b>	PP Latene, silicone, hardened glass, POM, stainless steel. Splashproof design.
<b>Data Memory</b>	Last 100 samples, QC & blank analyses, last 10 calibrations	<b>Power Requirements (Voltage)</b>	100/240 VAC
<b>Data Export</b>	On USB flash drive, CSV format, Excel compatible	<b>Power Requirements (Hz)</b>	50/60 Hz
<b>Operating Interface</b>	Soft keypad (Silicone)	<b>Operating Conditions</b>	15 - 35 °C (59 - 95 °F), 20 - 80% RH, non-condensing
<b>Display Type</b>	5,7"; Graphic color; VGA	<b>Storage Conditions</b>	-5 - 40 °C (23 - 104 °F)
		<b>Certifications</b>	Safety IEC/EN 61010-1; EMC IEC/EN 61326-1

*\*Subject to change without notice.*

### Order Information

#### Instruments

<b>AT1102.97</b>	AT1000 Potentiometric Titrator with 1 Burette - Model AT1102
<b>AT1112.97</b>	AT1000 Potentiometric Titrator with 1 Burette and 1 Pump - Model AT1112
<b>AT1122.97</b>	AT1000 Potentiometric Titrator with 1 Burette and 2 Pumps - Model AT1122
<b>AT1222.97</b>	AT1000 Potentiometric Titrator with 2 Burettes and 2 Pumps - Model AT1222
<b>KF1121.97</b>	KF1000 Volumetric Titrator for Karl Fischer Titrations with 1 Burette and 2 Pumps

#### Optional Accessories

<b>AS1000.97.12150</b>	Titralab AS1000 Series Sample Changer, 12 Positions, 50 & 150 mL Beakers
<b>AS1000.97.20090</b>	Titralab AS1000 Series Sample Changer, 20 Positions, 90 mL Beakers
<b>AS1000.97.30050</b>	Titralab AS1000 Series Sample Changer, 30 Positions, 50 mL Beakers
<b>LQV161.99.10000</b>	DPU-S445 USB Thermal printer kit
<b>LZE127</b>	Titramaster 1000 Series, PC software with Ethernet cable
<b>LZE142</b>	External Pump (sample leveling) Complete, for AT1000 Series Titrator
<b>LZE143</b>	Propeller stirrer, 80 mm shaft, for AT Titrator

# Titralab AT1000 Series Application Packages

## Setting up your application has never been so simple.

Application Packages for use with Titralab 1000 Series titrators from Hach contain all elements except reagents to make it quick and easy for everyone to set up and operate a test. Each Application Package is specifically designed for unique parameters to ensure accurate and reproducible measurements at a glance, including\*:

- Adapters
- Glass bottle
- Magnetic stirring bars
- Polypropylene beakers
- Bottle stopper with desiccant tube
- Electrode(s) (Digital Intellical or Analog)
- High precision glass syringe (Hamilton)
- USB key containing application notes and applications to automatically program titrators for selected parameters.



\*Application package content varies depending on application/parameters.

### Technical Data\*

Prod. No.	Parameter	AT1102	AT1112	AT1122	AT1222	KF1121
<b>Municipal Applications</b>						
AP0001.AT1102	pH/Alkalinity	•	•	•	•	
AP0002.AT1102	pH/Alkalinity & Conductivity	•	•	•	•	
AP0003.AT1112	Ca & Mg Hardness (ISE)		•	•	•	
AP0005.AT1222	pH/Alkalinity & Hardness				•	
AP0007.AT1122	Free & Total Chlorine, Chlorine Dioxide, Chlorite, Sulfite (Autocat)			•	•	
AP0009.AT1112	Chloride		•	•	•	
<b>Food &amp; Beverage Applications</b>						
AP0008.AT1102	pH, Total Acidity	•	•	•	•	
AP0010.AT1112	Salt in food products		•	•	•	
AP0011.AT1222	pH, Total Acidity & Chloride				•	
AP0012.AT1122	Free & Total SO <sub>2</sub> in Wine			•	•	
AP0013.AT1222	pH, Total Acidity, Free & Total SO <sub>2</sub> in Wine				•	
AP0025.AT1102	pH, Total Acidity (Single Syringe)	•	•	•	•	
AP0026.AT1222	pH, Total Acidity (Double Syringe)				•	
<b>Petrochemical Applications</b>						
AP0015.AT1102	TAN (Total Acid Number)	•	•	•	•	
AP0016.AT1102	TBN (Total Base Number)	•	•	•	•	
AP0017.AT1112	R-SH (Thiol)		•	•	•	
AP0018.AT1102	BR <sub>2</sub> /I <sub>2</sub> Number	•	•	•	•	
<b>Environmental Applications</b>						
AP0006.AT1102	FOS/TAC (Biogas)	•	•	•	•	
<b>Moisture Content Applications (Karl Fischer)</b>						
AP0014.KF1121	Moisture Content (Karl Fischer)					•

\*Subject to change without notice.

# Pocket Pro and Pocket Pro+ Testers



## Take The Guesswork Out of Your Measurements.

Pocket Pro and Pocket Pro+ testers measure electrochemical parameters in a broad range of water applications. The family of 12 testers offers convenient portable solutions for pH, ORP, conductivity, TDS, salinity, and temperature, delivering accurate results you can be confident in. The Pocket Pro+ testers take the value a step further with replaceable sensors, powerful backlight, and multi-parameter tester options.

### Confidence in Results

Easy calibration steps and built-in diagnostics for pH testers take the guesswork out of calibrating the sensor to keep it in optimum condition.

### Save Time and Money

Easy-to-replace AAA batteries and a convenient sample cup make maintenance and measurements simple.

### Ease of Use

The large LCD screen is easy to read; backlighting is included on Pocket Pro+ models, allowing measurement in almost any lighting environment.

*This product is intended for professional use only.*

## Technical Data\*

Model	Pocket Pro pH	Pocket Pro ORP	Pocket Pro TDS <sub>LR</sub>	Pocket Pro TDS <sub>HR</sub>	Pocket Pro Conductivity <sub>LR</sub>	Pocket Pro Conductivity <sub>HR</sub>	Pocket Pro Salt	Pocket Pro Temperature
Parameter	pH, Temp	ORP	LR TDS, Temp	HR TDS, Temp	LR Conductivity, Temp	HR Conductivity, Temp	Salinity, Temp	Temp
Operating Temperature Range	0 - 50 °C	0 - 50 °C	0 - 50 °C	0 - 50 °C	0 - 50 °C	0 - 50 °C	0 - 50 °C	0 - 50 °C
Range	0.0 to 14.0 pH	±999 mV	0 to 1999 ppm	0 to 10.00 ppt	0 to 1990 µS/cm	0.0 to 19.99 mS/cm	0 to 10.00 ppt	-15 to 170 °C
Accuracy	0.1 pH	± 2 mV	1% FS	2% FS	1% FS	2% FS	1% FS	1 °C
Resolution	0.1 pH	1 mV	1 ppm	0.01 ppt	1 µS/cm	0.01 mS/cm	0.01 ppt	0.1 °C
TDS Factor			Adjustable; 0.71 default	Adjustable; 0.71 default				
Battery Requirements	4, AAA	4, AAA	4, AAA	4, AAA	4, AAA	4, AAA	4, AAA	4, AAA
IP Rating	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Backlight	No	No	No	No	No	No	No	No
Prod. No.	9531000	9531100	9531200	9531300	9531400	9531500	9531600	9531700

*\*Subject to change without notice.*

## Order Information

### Pocket Pro Testers

- 9531000** Pocket Pro pH Tester
- 9531100** Pocket Pro ORP Tester
- 9531200** Pocket Pro Low Range TDS Tester
- 9531300** Pocket Pro High Range TDS Tester
- 9531400** Pocket Pro Low Range Conductivity Tester
- 9531500** Pocket Pro High Range Conductivity Tester
- 9531600** Pocket Pro Salinity Tester
- 9531700** Pocket Pro Temperature Tester

### Pocket Pro+ Testers

- 9532000** Pocket Pro+ pH Tester with Replaceable Sensor
- 9532100** Pocket Pro+ ORP Tester with Replaceable Sensor
- 9532700** Pocket Pro+ Multi 1 Tester for Cond/TDS/Salinity with Replaceable Sensor
- 9532800** Pocket Pro+ Multi 2 Tester for pH/Cond/TDS/Salinity with Replaceable Sensor

### Replacement Sensors

- 9531701** Replacement Sensor for Pocket Pro Temperature Tester
- 9532001** Replacement Sensor for Pocket Pro+ pH Tester
- 9532101** Replacement Sensor for Pocket Pro+ ORP Tester
- 9532701** Replacement Sensor for Pocket Pro+ Multi 1 Tester (Cond, TDS, Sal, Temp)
- 9532801** Replacement Sensor for Pocket Pro+ Multi 2 Tester (pH, Cond, TDS, Sal, Temp)

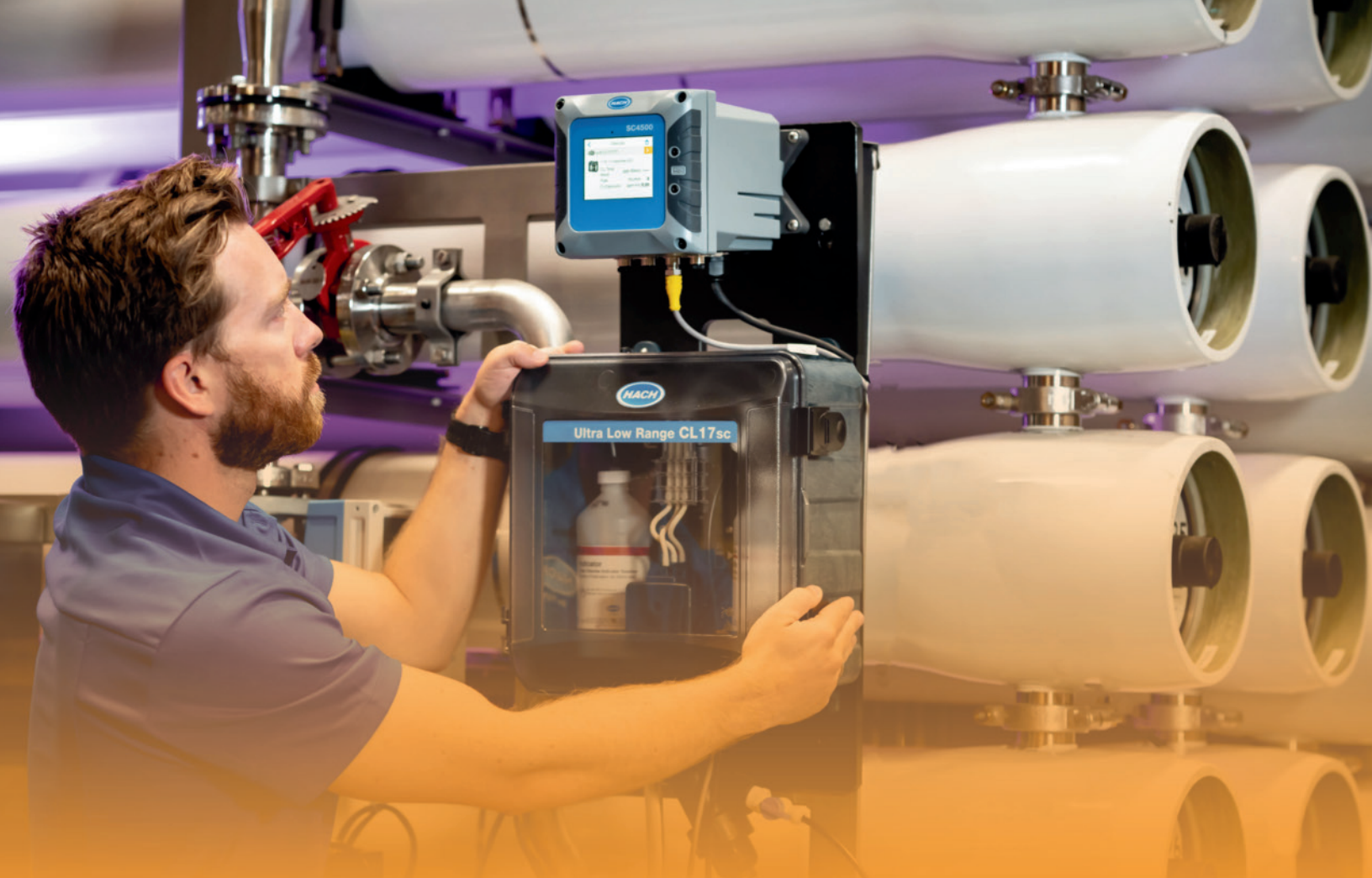
### Calibration Singlets

- 2770020** Singlet Single-Use pH Buffer, pH 4.01, pk/20
- 2770120** Singlet Single-Use pH Buffer, pH 7.00, pk/20
- 2770220** Singlet Single-Use pH Buffer, pH 10.01, pk/20
- 2771320** Singlet Single-use Conductivity Standard Solution, 147 µS/cm, KCl, 20 mL
- 2771420** Singlet Single-use Conductivity Standard Solution, 1413 µS/cm, KCl, 20 mL
- 2771520** Singlet Single-use Conductivity Standard Solution, 12.88 mS/cm, KCl, 20 mL

Learn More







# Process Instruments

Controllers

Analyzers & Sensors

Sample Preparation

EZ Series Analyzers

Water Monitoring Panels



*Be Right™*

# Digital Controller SC4500



## Ready for Now. Ready for the Future.

Technologies are advancing rapidly, providing new levels of convenience, accuracy, and efficiency. Which is exactly why the SC4500 Controller from Hach® is designed to integrate easily into your current system while allowing you to upgrade as your capabilities advance, without having to replace inventory.

With a wide range of analog and digital connectivity options and the availability of intelligent instrument and data management features, the SC4500 unlocks the future, today.

### Easy Adoption

The familiar experience of a modern touchscreen, the ability to use your current Hach sensors, and the same footprint as the SC200, make installation and integration of the SC4500 Controller seamless.

### No Time for Downtime

The SC4500's built-in predictive diagnostic software ensures measurement confidence and reduces the risk of unexpected equipment downtime by enabling proactive maintenance planning via MSM, including step-by-step instructions.

### The Connectivity Options You Need

The Controller is Smart Monitoring enabled and provides local communication to SCADA or a PLC. From analog and advanced digital protocols to Wi-Fi, cellular or LAN, the SC4500 gives you the flexibility to adapt in a rapidly changing world.

## Order Information

### Controllers

<b>LXV525.99A11551</b>	SC4500 Controller, Prognosys, 5x mA Output, 2 Digital Sensors, 100-240 VAC, without power cord
<b>LXV525.99E11551</b>	SC4500 Controller, Prognosys, 5x mA Output, 2 digital Sensors, US plug
<b>LXV525.99A11541</b>	SC4500 Controller, Prognosys, 5x mA Output, 1 digital Sensor, 1 mA Input, without plug
<b>LXV525.99E11541</b>	SC4500 Controller, Prognosys, 5x mA Output, 1 digital Sensor, 1 mA Input, US plug
<b>LXV525.99AA1551</b>	SC4500 Controller, Smart Monitoring enabled, 5x mA Output, 2 Digital Sensors, 100-240 VAC, without power cord
<b>LXV525.99EA1551</b>	SC4500 Controller, Smart Monitoring enabled, 5x mA Output, 2 digital Sensors, US plug
<b>LXV525.99AA1541</b>	SC4500 Controller, Smart Monitoring enabled, 5x mA Output, 1 digital Sensor, 1 mA Input, without plug
<b>LXV525.99EA1541</b>	SC4500 Controller, Smart Monitoring enabled, 5x mA Output, 1 digital Sensor, 1 mA Input, US plug

*Additional configurations are available. Please contact Hach Technical Support or your Hach representative.*

### Accessories

<b>LXZ524.97.00042</b>	SC4x00 Input Module
<b>LXZ525.99.D0002</b>	SC4x00 mA Output Module (5 Outputs)
<b>LXZ525.99.C0002</b>	SC4500 Ethernet IP Upgrade Kit
<b>LXZ525.99.C0003</b>	SC4500 LAN Connector Upgrade Kit
<b>LXZ524.99.00004</b>	SC4x00 UV Protection Screen
<b>LXZ524.99.00005</b>	SC4x00 UV Protection Screen with Sunroof
<b>LXZ525.99.D0003</b>	SC4500 pH/ORP Module
<b>LXZ525.99.D0004</b>	SC4500 Conductivity Module
<b>LXZ525.99.D0006</b>	SC4500 Ultrapure pH/ORP Module
<b>LXZ525.99.D0007</b>	SC4500 Ultrapure Conductivity Module
<b>LXZ525.97.D0008</b>	SC4500 Modbus RS232/RS485 Module

*Please visit [hach.com](http://hach.com) for a complete overview of accessories and spare parts.*

**Learn More**



## Technical Data\*

<b>Description</b>	Microprocessor-controlled and menu-driven controller that operates the sensor	<b>Communication (optional)</b>	Analog: Five 0-20 mA or 4-20 mA analog outputs on each analog output module
<b>Dimensions</b>	½ DIN - 144 x 144 x 192 mm (5.7 x 5.7 x 7.6 in.)		Up to two analog Input modules (0-20 mA or 4-20 mA). Each input module replaces a digital sensor input.
<b>Weight</b>	3.7 lb (controller only, w/o modules)		Digital: Profibus DPV1 module
<b>Display</b>	3.5-inch TFT colour display with capacitive touchpad		Modbus TCP
<b>Enclosure Rating</b>	UL50E type 4X, IEC/EN 60529-IP 66, NEMA 250 type 4X  Metal enclosure with a corrosion-resistant finish	<b>Network Connectivity</b>	Profinet IO module
<b>Operating Temperature Range</b>	-20 to 60 °C (-4 to 140 °F) (8 W (AC)/9 W (DC) sensor load)  -20 to 45 °C (-4 to 113 °F) (28 W (AC)/20 W (DC) sensor load)  Linear derating between 45 and 60 °C (-1.33 W/°C)		Ethernet IP module
<b>Storage Conditions</b>	-20 - 70 °C (-4 - 158 °F), 0 - 95% relative humidity, non-condensing		LAN: Two Ethernet connectors (10/100 Mbps) Cellular: External 4G Wi-Fi
<b>Altitude</b>	3000 m (9842 ft) maximum		Used for data download and software upload. The controller records approximately 20,000 data points for each connected sensor.
<b>Installation Category</b>	Category II	<b>USB Port</b>	CE. ETL certified to UL and CSA safety standards (with all sensor types), FCC, ISED, KC, RCM, EAC, UKCA, SABS, C <sub>μ</sub> (Morocco)
<b>Indoor/Outdoor</b>	Outdoor installation in direct sunlight or UV radiation requires UV protection screen and/or sunroof	<b>Compliance Certifications</b>	GSM 3G/4G (e.g. AT&T, T-Mobile, Rogers, Vodafone etc.)
<b>Pollution Degree</b>	4	<b>Compatible Network Technologies</b>	CDMA (e.g. Verizon)
<b>Protection Class</b>	I, connected to protective earth	<i>*Subject to change without notice.</i>	
<b>Power requirements</b>	AC controller: 100-240 VAC ±10%, 50/60 Hz; 1 A (28 W sensor load)  DC controller: 24 VDC +15% -20%; 2.5 A (20 W sensor load)		
<b>Relays</b>	Two relays (SPDT);  Wire gauge: 0.75 to 1.5 mm <sup>2</sup> (18 to 16 AWG)  AC controller  Maximum switching voltage: 100 - 240 VAC  Maximum switching current: 5 A Resistive/ 1 A Pilot Duty  Maximum switching power: 1200 VA Resistive/ 360 VA Pilot Duty  DC controller  Maximum switching voltage: 30 VAC or 42 VDC  Maximum switching current: 4 A Resistive/ 1 A Pilot Duty  Maximum switching power: 125 W Resistive/ 28 W Pilot Duty		



## SC1000 Multi-parameter Universal Controller

### The only controller needed for all of your water quality measurements.

The Hach SC1000 Multi-parameter Universal Controller is a state-of-the-art modular transmitter system. The SC1000 consists of a Display Module and at least one Probe Module. Probe Modules for the SC1000 can be networked together to accommodate up to 32 digital sensors or analyzers. The SC1000 Display Module is intuitive, with an easy to use interface and large color touch-screen display that can be used for any number of parameters. One Display Module controls one or more Probe Modules connected by a digital network. The Display Module is fully portable, and can be disconnected and moved anywhere within the network. The Hach SC1000 Display Module is available with GSM/GPRS and Modbus TCP/IP capability.

Prognosis is a predictive diagnostic system that allows you to be proactive in your maintenance, by alerting you to upcoming instrument issues. Know with confidence whether changes in your measurements are due to changes in your instrument or your water.

#### More Confidence in Your Instrument's Performance

Available exclusively on Hach instruments, Prognosis predictive diagnostics uses innovative diagnostic software to read multiple inputs from your instrument and alert you to the instrument's overall performance and upcoming maintenance. An easy-to-read dashboard provides instant indication of measurement reliability and service requirements. Process control has never been easier.

#### Plug and Play Operation

There's no complicated wiring or set up procedures with the SC1000 controller. Plug any Hach digital sensor into a Probe Module and it's ready for use. No special ordering or software configuration is needed.

#### Communication Options to Fit Any Application Need

The Hach SC1000 controller features state-of-the art Modbus TCP/IP communications protocol for seamless integration into a network of devices that support TCP/IP sockets. Use a standard Ethernet cable or connect wirelessly using GSM/GPRS to communicate with your SCADA, PLC or other network. Available with analog 4-20mA, Modbus 485, Profibus DP, or HART digital communication options.

#### Expandable and Upgradable

The SC1000 controller can adapt to your needs. Add or change probes without having to change the controller. Plus, with a single Display Module, additional Probe Modules and associated sensors can be added or removed depending on operational needs. Fully upgradable software ensures that this system will not be obsolete. Hach service plans are available.

Learn More





## Technical Data\*

<b>Operating Temperature Range</b>	-20 - 55 °C (-4 - 131 °F) / 0 - 95% relative humidity, non-condensing
<b>Storage Conditions</b>	-20 - 70 °C (-4 - 158 °F), 0 - 95% relative humidity, non-condensing
<b>Power Requirements (Voltage)</b>	100 - 240 VAC, 24 VDC
<b>Power Requirements (Hz)</b>	50/60 Hz
<b>Display</b>	¼ inch VGA graphical backlit TFT color Glas/Glas-Touch screen, high resistance 320 x 240 pixels
<b>Display Viewing Area</b>	11.4 x 8.6 cm (4.5 x 3.4 in)
<b>Alarm</b>	Low alarm point, low alarm point deadband, high alarm point, high alarm point deadband, off delay, and on delay
<b>Relays</b>	Up to four SPDT, user-configurable contacts rated 100 to 230 VAC, 5 Amp resistive maximum per probe module.  Additional relays are available with additional probe modules.
<b>Inputs</b>	Up to 12 analog 0-20 mA, maximum impedance 500 Ohms per probe module. Additional inputs are available with additional probe modules.
<b>Outputs</b>	Up to 12 analog 0/4-20 mA, maximum impedance 500 Ohms per probe module.  Additional analog outputs with additional probe modules. Optional digital communications via Modbus (RS485) and Profibus DP/V1.
<b>Analog Output Functional Mode</b>	PID, high/low phasing, setpoint, deadband, overfeed timer, off delay, on delay
<b>Communication</b>	Modbus (RS485): Advanced communications/networking with PLC or SCADA system directly from analyzer  Profibus DP/V1 (certified)  GSM/GPRS Quad-band cellular module (FCC and IC approved, EU and US only)  Ethernet service port, RJ45, 10 MB/s
<b>Mounting Configurations</b>	Surface, panel, and pipe (horizontal and vertical) with optional sun shield
<b>Enclosure Rating</b>	IP65
<b>Material Enclosures</b>	ABS (display module) and metal (probe module) enclosure with corrosion resistant finish
<b>Dimensions (H x W x D)</b>	250 x 315 x 150 mm (12.4 x 10.1 x 6 in.)
<b>Certifications</b>	North American Certifications: cTUVus to UL 61010A-1 and CSA C22.2 No. 1010.1 FCC ID QIPMC56 / IC ID 267W-MC56  European Certifications: CE per 73/23/EEC and 89/336/EEC TUV-GS to EN 61010-1 EN 61326 Amd's 1 & 2
<b>Weight</b>	Approximately 6.5 kg (14.33 lb), depending on configuration

\*Subject to change without notice.

## Order Information

### SC1000 Display Modules

<b>LXV402.99.00002</b>	SC1000 Display Module
<b>LXV402.99.10002</b>	SC1000 Display Module with Modbus® TCP/IP Protocol

### SC1000 Probe Modules

<b>LXV400.99.1R172</b>	SC1000 Probe Module, 4 Sensors with Conduits, 4x 4-20mA Out, 4x Relays, 110-240 VAC with Conduits
<b>LXV400.99.1B572</b>	SC1000 Probe Module, 4 Sensors, 4x 4-20mA Out, 4x 4-20mA In, Modbus RS485, 4x Relays, 100-240 VAC with Conduits
<b>LXV400.99.1F572</b>	SC1000 Probe Module, 4 Sensors, 4x 4-20mA Out, 4x 4-20mA In, Profibus DP, 4x Relays, 100-240 VAC with Conduits
<b>LXV400.99.1R582</b>	SC1000 Probe Module, 6 Sensors, 4x 4-20mA Out, 4x 4-20mA In, 4x Relays, 100-240 VAC with Conduits
<b>LXV400.99.1H082</b>	SC1000 Probe Module, 6 Sensors, Prognosys, Modbus RS485, 100-240 VAC with Conduits
<b>LXV400.99.1G082</b>	SC1000 Probe Module, 6 Sensors, Prognosys, 100-240 VAC with Conduits
<b>LXV400.99.ZA022</b>	SC1000 Probe Module, 4 Sensors, Modbus RS485, 24 VDC
<b>LXV400.99.ZR122</b>	SC1000 Probe Module, 4 Sensors, 4x 4-20mA Out, 4x Relays, 24 VDC
<b>LXV400.99.10092</b>	SC1000 Probe Module, 8 Sensors with Conduits, 110-240 VAC with Conduits
<b>LXV400.99.10082</b>	SC1000 Probe Module, 6 Sensors with Conduits, 110-240 VAC with Conduits

*Note: Additional Probe Module configurations are available. Please contact your local Hach representative.*

### Network and Communication Cards

<b>YAB021</b>	SC1000 Internal Modbus RS485 Card
<b>YAB020</b>	SC1000 Internal Profibus DP Card
<b>YAB076</b>	SC1000 Internal Relay Card
<b>YAB018</b>	SC1000/SC1500 Internal 0/4-20 mA Analog Input Card
<b>YAB019</b>	SC1000/SC1500 Internal 0/4-20 mA Analog Output Card
<b>LZY885.99.00002</b>	Prognosys Communication Card for SC1000

### Accessories

<b>6169900</b>	SC1000 Panel Mount Kit
<b>LZX958</b>	SC1000 Sunshield
<b>LZX957</b>	SC1000 Sunshield with mounting pole (1.8 m/5.9 ft)
<b>LZY598</b>	Modbus TCP/IP License Kit for field upgrade (Display Module serial number required when ordering)
<b>LZX849</b>	Digital Extension Cable, 10 m
<b>LZY488</b>	SC1000 Bus cable for flexible installations (order per foot)
<b>LZY489</b>	SC1000 Bus cable for fixed installations (order per foot)
<b>5448800</b>	Power Cord, 120 VAC

# SC Controller Quick Reference Guide

Model	SC1000	SC4500
<b>Description</b>	The SC1000 multi-parameter Universal Controller is a fully modular system consisting of a Display Module and one or more Probe Modules.	Microprocessor-controlled and menu-driven controller that operates the sensor
<b>Display</b>	¼ inch VGA graphical backlit TFT color Glas/Glas-Touch screen, high resistance 320 x 240 pixels	3.5-inch TFT colour display with capacitive touchpad
<b>Enclosure Rating</b>	IP65	UL50E type 4X, IEC/EN 60529-IP 66, NEMA 250 type 4X Metal enclosure with a corrosion-resistant finish
<b>Operating Temperature Range</b>	-20 - 55 °C (-4 - 131 °F) / 0 - 95% relative humidity, non-condensing	-20 to 60 °C (-4 to 140 °F) (8 W (AC)/9 W (DC) sensor load) -20 to 45 °C (-4 to 113 °F) (28 W (AC)/20 W (DC) sensor load) Linear derating between 45 and 60 °C (-1.33 W/°C)
<b>Storage Conditions</b>	-20 - 70 °C (-4 - 158 °F), 0 - 95% relative humidity, non-condensing	-20 - 70 °C (-4 - 158 °F), 0 - 95% relative humidity, non-condensing
<b>Altitude</b>	2000 m (6562 ft) maximum	3000 m (9842 ft) maximum
<b>Sensors</b>	Up to 8 Sensors	Up to 2 Sensors
<b>Power requirements</b>	100-240 VAC ±10%, 50/60 Hz; max. 1000 VA, Category II or 24 VDC (18-30 VDC), max. 75 W	AC controller: 100-240 VAC ±10%, 50/60 Hz; 1 A (28 W sensor load) DC controller: 24 VDC +15% -20%; 2.5 A (20 W sensor load)
<b>Relays</b>	Up to four SPDT, user-configurable contacts rated 100 to 230 VAC, 5 Amp resistive maximum per probe module.  Additional relays are available with additional probe modules.	Two relays (SPDT); Wire gauge: 0.75 to 1.5 mm <sup>2</sup> (18 to 16 AWG)  AC controller Maximum switching voltage: 100 - 240 VAC Maximum switching current: 5 A Resistive/1 A Pilot Duty Maximum switching power: 1200 VA Resistive/360 VA Pilot Duty  DC controller Maximum switching voltage: 30 VAC or 42 VDC Maximum switching current: 4 A Resistive/1 A Pilot Duty Maximum switching power: 125 W Resistive/28 W Pilot Duty
<b>Inputs</b>	Up to 12 analog 0-20 mA, maximum impedance 500 Ohms per probe module. Additional inputs are available with additional probe modules.	Up to two analog Input modules (0-20 mA or 4-20 mA). Each input module replaces a digital sensor input.
<b>Outputs</b>	Up to 12 analog 0/4-20 mA, maximum impedance 500 Ohms per probe module.  Additional analog outputs with additional probe modules. Optional digital communications via Modbus (RS485) and Profibus DP/V1.	Five 0-20 mA or 4-20 mA analog outputs on each analog Output module
<b>Communication (optional)</b>	Modbus (RS485): Advanced communications/networking with PLC or SCADA system directly from analyzer Profibus DP/V1 (certified) GSM/GPRS Quad-band cellular module (FCC and IC approved, EU and US only)  Ethernet service port, RJ45, 10 MB/s	Profibus DPV1 module Modbus TCP Profinet IO module Ethernet IP module
<b>Compliance Certifications</b>	North American Certifications: cTUVus to UL 61010A-1 and CSA C22.2 No. 1010.1 FCC ID QIPMC56 / IC ID 267W-MC56  European Certifications: CE per 73/23/EEC and 89/336/EEC TUV-GS to EN 61010-1 EN 61326 Amd's 1 & 2	CE. ETL certified to UL and CSA safety standards (with all sensor types), FCC, ISED, KC, RCM, EAC, UKCA, SABS, C <sub>ϕ</sub> (Morocco)
<b>Compatible Network Technologies</b>	GSM modem  The SC1000 display module with integrated GSM/GPRS modem transmits data SMS messages and GPRS services in GSM nets.  The SC1000 is offered with different GSM frequency bands: MC55I-W 850/900/1800/1900 MHz  MC55I-W features GPRS multislots class 10 and supports the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.	GSM 3G/4G (e.g. AT&T, T-Mobile, Rogers, Vodafone etc.)  CDMA (e.g. Verizon)
<b>Network Connectivity</b>		LAN: Two Ethernet connectors (10/100 Mbps) Cellular: External 4G Wi-Fi
<b>Mounting</b>	Surface, panel, and pipe (horizontal and vertical) with optional sun shield	Wall, Pole, or Panel Mounting
<b>Dimensions</b>	250 mm x 315 mm x 150 mm (12.4 x 10.1 x 6 in.)	½ DIN - 144 x 144 x 192 mm (5.7 x 5.7 x 7.6 in.)
<b>Weight</b>	Approximately 6.5 kg (14.33 lb), depending on configuration	1.7 kg (3.7 lb) (controller only, w/o modules)

\*Subject to change without notice.

# NH6000sc Online Ammonia Analyzer



## Experience Unmatched Efficiency and Reliability with the NH6000sc Ammonia Analyzer: High-Quality Measurements and Predictive Diagnostics for Optimal Performance

Simplify your online operations with the NH6000sc, an online Ammonia Analyzer using gas sensing electrode (GSE) technology. The environmentally controlled design is ready for easy, outdoor installations at the measurement point you need. With minimal maintenance requirements and proven reliability, Hach's NH6000sc will give you confidence in your measurement results and improved process efficiency.

### Maximize uptime and accuracy with trusted technology

The NH6000sc ammonia analyzer from Hach® uses fast, accurate and trusted GSE technology. The NH6000sc provides reliable measurements with automatic calibration, validation, and cleaning. A verification grab sample improves consistency between online and lab data through an automatic sampling process. Predictive diagnostics and supportive maintenance workflows help you maximize uptime.

### Save time with biannual maintenance

The NH6000sc ammonia analyzer reduced routine user maintenance frequency to only twice per year. Engineered with efficiency in mind, the instrument's streamlined design and optimized reagents make operation simple and user-friendly. With a standard cleaning cycle, the reagents have an extended replacement time of every 6-months.

Learn More



### Robust and lightweight integrated filtration options

The integrated FX610 filtration system and the more rugged FX620 feature lightweight construction with improved air cleaning and innovative flow detection. These features ensure reliable functionality and reduced operational touchpoints. Plus, you'll have the ability to remotely check that your sample is consistently supplied to your analyzer to increase confidence in your results.

## Order Information

### Analyzers

<b>LXV461.99.00021</b>	NH6000sc Ammonia Analyzer, 1 channel, for use with 1 external sample filtration system, 115 VAC
<b>LXV461.99.00121</b>	NH6000sc Ammonia Analyzer, 1 channel, for use with 1 external sample filtration system, automatic verification grab sample, 115 VAC
<b>LXV461.99.02021</b>	NH6000sc Ammonia Analyzer, 1 channel, includes sample supply pump for use with FX620 sample filtration system, 115 VAC
<b>LXV461.99.02121</b>	NH6000sc Ammonia Analyzer, 1 channel, includes sample supply pump for use with FX620 sample filtration system, automatic grab sample verification, 115 VAC
<b>LXV461.99.03021</b>	NH6000sc Ammonia Analyzer, 2 channels, for use with 2 external sample filtration systems, 115 VAC

*Please note: These are the most common product configurations, but others are available. Please contact your Hach representative for additional information.*

*A sample filtration system (Filtrax, FX6x0, or TMS-C) and a digital Hach SC controller are required for operation of the NH6000sc. Sample filtration system and controller are sold separately.*

*For Filtration Systems please also see section Sample Preparation.*

### Mounting Hardware and Accessories

<b>LZY285</b>	Rail mounting kit for SC analyzer with SC controller
<b>LZY286</b>	Stand mounting kit for SC analyzer with SC controller
<b>LZY316</b>	Rail mounting kit for SC analyzer without SC controller
<b>LZY287</b>	Stand mounting kit for SC analyzer without SC controller
<b>LXZ461.99.00007</b>	Controller Mounting kit

<b>LXZ461.99.00011</b>	Heated Drain Hose, 5 m, 230 V
<b>LXZ461.99.00003</b>	Sample and Connection Tube for multiple Analyzers
<b>LQV155.99.00002</b>	Power box without power connection cable
<b>LQV155.99.00012</b>	Power box with power connection cable

### Reagents

<b>LCW1211</b>	NH6000sc Standard Solution 1 for Measuring Range 1, 0.5 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1212</b>	NH6000sc Standard Solution 2 for Measuring Range 1, 2.5 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1221</b>	NH6000sc Standard Solution 1 for Measuring Range 2, 1 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1222</b>	NH6000sc Standard Solution 2 for Measuring Range 2, 10 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1231</b>	NH6000sc Standard Solution 1 for Measuring Range 3, 10 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1232</b>	NH6000sc Standard Solution 2 for Measuring Range 3, 50 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1241</b>	NH6000sc Standard Solution 1 for Measuring Range 4, 50 mg/L $\text{NH}_4\text{-N}$ , 2 L
<b>LCW1242</b>	Standard solution 2, 500 mg/L for measurement range 4
<b>LCW1255</b>	NH6000sc Reagent Solution, 2 L
<b>LCW1265</b>	NH6000sc Cleaning Solution, 250 mL
<b>LCW1275</b>	NH6000sc Electrolyte Set for Measuring Range 2, 3 and 4
<b>LCW1285</b>	NH6000sc Electrolyte Set for Measuring Range 1

*Part numbers may vary by country.*

# A-ISE sc Ammonia Sensor

**ISE probe for the on-line measurement of Ammonium provides trending information with minimal maintenance at an affordable price.**

## Cost-Effective Trending Information

The A-ISE sc Sensor utilizes ion selective electrode (ISE) technology to provide your plant with high level trending information while saving money by eliminating the need for reagents and sample preparation. With no sample preparation required beforehand,  $\text{NH}_4\text{-N}$  can be measured during the actual process, ensuring less interruption, reduced costs, time and maintenance

## Minimal Maintenance with Simple Cartridge Replacement

The sensor uses a factory calibrated cartridge so little maintenance is necessary. Cartridge replacement is simple: unscrew the old cartridge, plug in the new one, and the sensor is ready for measurement. Using RFID\* technology, the factory calibration is automatically identified after replacing the cartridge.

## Simple, Accurate Calibration

Easy to perform, fail-safe calibration corrections compensate for naturally occurring calibration drift in ISE instruments. An advanced menu structure allows you to perform corrections without manual entry of values via Ethernet, SD card or Bluetooth®.

\*RFID version available only in US, EU, Canada, Australia, New Zealand, Croatia, Cyprus and Turkey.

## Order Information

### Mounting Hardware

**LXV440.99.10002** A-ISE sc Low cost ISE Ammonia probe (immersion) with RFID, 10 m cable

**LXV440.99.10012** A-ISE sc Low cost ISE Ammonia probe (immersion) without RFID, 10 m cable

*Please note: A digital Hach SC controller is required to operate the A-ISE sc sensor, controller is sold separately.*

### Mounting Hardware

**LZY714.99.32320** Pole mounting hardware AN-ISE sc/A-ISE sc/N-ISE sc, 24 cm bracket, SS pole 2 m

**6184900** Rail Mount Kit

**LZX914.99.12400** Chain Mount Kit (PVC) for ISE sensors

**LZY771** Sedimentor for AN-ISE sc/A-ISE sc/N-ISE sc

### Cartridge

**LZY694** Cartrical Sensor Cartridge for AN-ISE sc/A-ISE sc/N-ISE sc Sensors

### Standards and Accessories

**LCW895** Test Solution 1 for AN-ISE sc/A-ISE sc/N-ISE sc Sensors, 2 L

**LCW896** Test Solution 2 for AN-ISE sc/A-ISE sc/N-ISE sc Sensors, 2 L

**LZY720** Test Cartridge for AN-ISE sc/A-ISE sc/N-ISE sc

**LZY706** Cleaning Unit for AN-ISE sc/A-ISE sc/N-ISE sc Sensors

**6860000** High Output Air Blast Cleaning System, 115 VAC

**6860100** High Output Air Blast Cleaning System, 230 Vac

*Part numbers may vary by country.*

**Learn More**





# AN-ISE sc Combination Sensor for Ammonia and Nitrate



**Two-in-one low maintenance sensor measures both ammonia and nitrate at the same time.**

## Combination Sensor for Ammonium and Nitrate

This combination sensor has the ability to measure Ammonia and Nitrate at the same time, eliminating the need for multiple sensors.

## No Reagents or Sample Preparation

This sensor utilizes ion selective electrode (ISE) technology. It is designed for immersion directly in aeration basins eliminating the need for reagents and sample preparation. The sensor can be easily installed outdoors without additional housings, so it is easy to relocate to various locations.

## Compensated for Significant Interferences

The sensor compensates for the most common interferences with integrated potassium and chloride electrodes within the cartridge. The compensation allows the sensor to provide accurate and reliable results.

## Easy to Maintain Sensor Cartridge

The Cartrical cartridge eliminates handling and adjustment of individual electrodes because it contains four electrodes that are factory calibrated to each other. Cartridge replacement is simple: unscrew the old cartridge, plug in the new one, and the sensor is ready for measurement. The factory calibration is automatically identified after replacing the cartridge by using RFID technology.

## Energy Cost Savings

The AN-ISE sc sensor can be used to optimize Nitrogen removal to facilitate reduced costs. Whether you are monitoring in a Sequencing Batch Reactor (SBR) or in a Nitrification/Denitrification process, the sensor provides visibility to real-time Ammonia and Nitrate levels, allowing you to run the blowers when needed and save energy costs.

## Order Information

### AN-ISE sc Sensors

- LXV440.99.00002** AN-ISE sc Low Cost ISE Combination Sensor for Ammonia and Nitrate (immersion) with RFID, 10 m cable
- LXV440.99.00012** AN-ISE sc Low Cost ISE Combination Sensor for Ammonia and Nitrate (immersion) without RFID, 10 m cable

*Please note: A digital Hach SC controller is required to operate the AN-ISE sc sensor, controller is sold separately.*

### Mounting Hardware

- LZY714.99.32320** Pole mounting hardware AN-ISE sc/A-ISE sc/N-ISE sc, 24 cm bracket, SS pole 2 m
- 6184900** Rail Mount Kit
- LZX914.99.12400** Chain Mount Kit (PVC) for ISE sensors

### Cartridge

- LZY694** Cartrical Sensor Cartridge for AN-ISE sc/A-ISE sc/N-ISE sc Sensors

### Standards and Accessories

- LCW895** Test Solution 1 for AN-ISE sc/A-ISE sc/N-ISE sc Sensors, 2 L
- LCW896** Test Solution 2 for AN-ISE sc/A-ISE sc/N-ISE sc Sensors, 2 L
- LZY720** Test Cartridge for AN-ISE sc/A-ISE sc/N-ISE sc
- LZY771** Sedimeter for AN-ISE sc/A-ISE sc/N-ISE sc
- LZY706** Cleaning Unit for AN-ISE sc/A-ISE sc/N-ISE sc Sensors
- 6860000** High Output Air Blast Cleaning System, 115 VAC

*Part numbers may vary by country.*

## Learn More



# Ammonia Analyzer/Sensor

## Quick Reference Guide



Product Type	NH6000sc Analyzer	A-ISE sc Sensor	AN-ISE sc Combination Sensor
Parameter	Ammonium	NH <sub>4</sub> -N	NH <sub>4</sub> -N and NO <sub>3</sub> -N
Measurement Method	Gas sensing electrode (GSE)	Potentiometric ion-selective measurement	Potentiometric ion-selective electrodes for ammonium and potassium, reference system and temperture sensor
RFID	--	Yes	Yes
Application	Wastewater Drinking Water	Wastewater	Wastewater
Range	0.02 - 5.0 mg/L NH <sub>4</sub> -N	0 - 1000 mg/L NH <sub>4</sub> -N	0 - 1000 mg/L NH <sub>4</sub> -N
	0.05 - 20 mg/L NH <sub>4</sub> -N		0 - 1000 mg/L NO <sub>3</sub> -N
	1 - 100 mg/L NH <sub>4</sub> -N		0 - 1000 mg/L K <sup>+</sup>
	10 - 1000 mg/L NH <sub>4</sub> -N		0 - 1000 mg/L Cl <sup>-</sup>
Lower Limit of Detection (LOD)	Measuring range 1: 0.02 mg/L NH <sub>4</sub> -N	0.2 mg/L NH <sub>4</sub> -N	0.2 mg/L NH <sub>4</sub> -N and NO <sub>3</sub> -N
	Measuring range 2: 0.05 mg/L NH <sub>4</sub> -N		
	Measuring range 3: 1 mg/L NH <sub>4</sub> -N		
	Measuring range 4: 10 mg/L NH <sub>4</sub> -N		
Accuracy	With Standard Solution: Measuring range 1: ≤ 1 mg/L: 3% of the measured value + 0.02 mg/L > 1 mg/L: 5% of the measured value + 0.02 mg/L	5% of measured value + 0.2 mg/L (with standard solutions) NH <sub>4</sub> -N	5% of measured value +0.2 mg/L (with standard solutions) NH <sub>4</sub> -N and NO <sub>3</sub> -N
	Measuring range 2: 3% of the measured value + 0.05 mg/L		
	Measuring range 3: 3% of the measured value + 1.0 mg/L		
	Measuring range 4: 4.5% of the measured value + 10 mg/L		
Sample Temperature	4 - 40 °C (39 - 104 °F)	2 - 40 °C (35.6 - 104 °F)	
Sample Pressure	2.5 bar (0.25 MPa) maximum	0.3 bar max.	
Cable Length	Data and power cable: 2 m (80 in.) from edge of enclosure	Standard: 10 m (33.8 ft) Extension cables are available as an option in the following lengths: 5, 10, 15, 20, 30, 50 m (16.4, 33.8, 49.2, 65.6, 98.4, 164 ft)	
Dimensions (D x L)	575 x 991 x 425 mm (22.63 x 39.01 x 16.73 in.)	84.5 x 320 mm (3.3 x 12.6 in.)	
Weight	Approximately 45 kg (99.21 lbs.) without chemicals	2.38 kg (5.25 lbs.)	
Controller Compatibility	Digital SC Controller		

Please note that a Hach SC controller is required for operation, controller must be purchased separately.

\*Subject to change without notice.

# 5500sc Ammonia Monochloramine Analyzer

## Chloramination made easy.

The Hach 5500sc Ammonia Monochloramine Analyzer provides all the information you need to eliminate nitrification events and taste and odor issues, giving you total confidence in your process.

### Easy operation

The analyzer offers an easy-to-operate, low-maintenance solution to help you maintain the proper chlorine to ammonia ratio and assure there is no free ammonia in your system that could lead to nitrification. We removed the traditional pumps associated with reagent delivery and replaced them with a pressurized system to eliminate the hassles and maintenance that pumps can cause.

### Reliability without all the work

With Prognosys, the analyzer's onboard predictive diagnostic software, you will have early insight into the measurement reliability and service requirements of your instruments. A user-friendly interface, color coded reagent bottles and at-a-glance status lights will offer peace of mind the instrument is up and running.

### Improved control of your chloramination process

The 5500sc Ammonia Monochloramine Analyzer provides continuous monitoring, so you can trust that your instrument is giving you the information you need to control your chloramination process.



### Technical Data\*

<b>Range</b>	0.01 - 2 ppm (as N), 0.05 - 10.0 mg/L (as Cl <sub>2</sub> )
<b>Parameter</b>	Total Ammonia, Monochloramine, and Free Ammonia
<b>Number of sample streams</b>	1 or 2 in programmable sequence
<b>Accuracy</b>	± 5% or 0.01 ppm (as N) for 5 - 40 °C; ±10% or 0.02 ppm for 40 - 50 °C, whichever is greater
<b>Repeatability</b>	3% or 0.01 ppm (as N), whichever is greater
<b>Lower Limit of Detection (LOD)</b>	0.01 ppm (as N)
<b>Response Time</b>	Within 5 minutes
<b>Reagent Consumption</b>	1L of reagents every month with 5 minute cycle time
<b>Operating Temperature Range</b>	5 - 45 °C (41 - 113 °F)
<b>Operating Humidity</b>	5 - 95% non-condensing
<b>Sample Pressure</b>	0.17 - 6.8 bar (2.5 - 87 psi)
<b>Sample Temperature</b>	5 - 50 °C (41 - 122 °F)
<b>Sample Flow Rate</b>	100 - 1000 mL/minute
<b>Grab Sample</b>	Grab Sample In and Grab Sample Out capability
<b>Mounting</b>	Wall, panel, or table
<b>Inlet</b>	6mm OD push-to-connect fitting for plastic tubing
<b>Outlet</b>	11mm (7/16 in.) ID slip-on fitting
<b>Outputs</b>	Four 0/4-20 mA Outputs, load impedance 600 ohm maximum
<b>Communication</b>	4-20mA Output, Optional: Modbus RS485, Profibus DP with external controller
<b>Dimensions (H x W x D)</b>	804 x 452 x 360 mm (31.65 x 17.8 x 14.17 in.)
<b>Enclosure Rating</b>	IP56 / NEMA 4X
<b>Certifications</b>	CE (EN 61326-1: 2006; EN 61010-1: 2010; EN 60529: 1991, +A1:2000) cETLus (UL 61010-1:2012; NEMA 250:2003; CSA C22.2 No 61010-1:2012) Australian RCM Marking
<b>Weight</b>	20.5 kg (45.5 lb) without reagents and standards, 30 kg (66.2 lb) with reagents, standards and cleaning solution

\*Subject to change without notice.

### Order Information

<b>5500.AMC.1.KTO</b>	5500sc Ammonia Monochloramine Analyzer, 1 Channel
<b>5500.AMC.2.KTO</b>	5500sc Ammonia Monochloramine Analyzer, 2 Channel
<b>5500.AMC.3.KTO</b>	5500sc Ammonia Monochloramine Analyzer, 1 Channel with External Filter
<b>5500.AMC.4.KTO</b>	5500sc Ammonia Monochloramine Analyzer, 2 Channel with External Filter

### Reagents

<b>25233000</b>	5500sc Ammonia Monochloramine Analyzer Reagent Set
<b>25234000</b>	5500sc Ammonia Monochloramine Reagent 1, 1L
<b>25235000</b>	5500sc Ammonia Monochloramine Reagent 2, 1L
<b>25236000</b>	5500sc Ammonia Monochloramine Reagent 3, 1L
<b>25237000</b>	5500sc Ammonia Monochloramine Standard 1 (0 ppm NH <sub>3</sub> ), 2L
<b>25238000</b>	5500sc Ammonia Monochloramine Standard 2 (2 ppm NH <sub>3</sub> ), 2L
<b>25239000</b>	5500sc Ammonia Monochloramine Acidic Surfactant Wash, 2 L

### Accessories

<b>9179700</b>	Power cord, North American
<b>9560501</b>	5500sc Ammonia Monochloramine Maintenance Kit, 1 Channel
<b>9560502</b>	5500sc Ammonia Monochloramine Maintenance Kit, 2 Channel
<b>25224000</b>	Colorimeter Cleaning Kit for 5500sc Ammonia Monochloramine Analyzer
<b>6792500</b>	5500sc Modbus Module Kit
<b>25277000</b>	Prognosys License for the 5500sc Ammonia Monochloramine Analyzer

### Learn More



# CL17sc Colorimetric Chlorine Analyzer



## The Next Standard in Chlorine Analysis

Built on a legacy of reliability in online chlorine analysis, the advanced design of the CL17sc reduces routine maintenance touch time and provides powerful diagnostic features and enhanced connectivity. The result is less hassle, minimized risk of data loss, and even more reliable information to empower your decision making.

### Maintenance made easy

The CL17sc reduces your routine maintenance touch time with programmable alerts, simplified tubing replacement, and step-by-step maintenance instructions.

### Peace of mind through comprehensive diagnostics

With upgraded features like a flow meter, colorimeter window, multi-color status light, and predictive diagnostic software, you know your instrument is operating as intended.

### Expanded connectivity. Increased flexibility.

By pairing the CL17sc with Hach's SC controller platform, your options increase significantly: internal data logging; external analog and digital communication alternatives; and multi-parameter instrument flexibility.

The CL17sc is compliant with US EPA regulation 40 CFR 141.74. Both Method 4500-CL G and Method 334.0 can be used for measuring residual chlorine in drinking water.

## Order Information

Hach CL17sc Colorimetric Chlorine Analyzers are shipped with an installation kit, user manual, and one month of reagents where noted. The user selects a standpipe installation kit or a pressure regulator installation kit at the time of purchase. Hach SC controllers are required for operation and are sold separately.

### CL17sc Colorimetric Chlorine Analyzers

- 8572700** CL17sc Colorimetric Chlorine Analyzer with Standpipe Installation Kit and Reagents for Free Chlorine
- 8572800** CL17sc Colorimetric Chlorine Analyzer with Standpipe Installation Kit and Reagents for Total Chlorine
- 8572900** CL17sc Colorimetric Chlorine Analyzer with Pressure Regulator Installation Kit and Reagents for Free Chlorine
- 8573000** CL17sc Colorimetric Chlorine Analyzer with Pressure Regulator Installation Kit and Reagents for Total Chlorine
- 8572300** CL17sc Colorimetric Chlorine Analyzer with Standpipe Installation Kit, w/o Reagents
- 8572400** CL17sc Colorimetric Chlorine Analyzer with Pressure Regulator Installation Kit, w/o Reagents
- 8572350** CL17sc Colorimetric Chlorine Analyzer with Standpipe Installation Kit (> 10 psi sample pressure to Y-strainer), w/o reagents
- SPMP-CL** Single Parameter Monitoring Panel with SC4500 and CL17sc

### Accessories

- 8568200** CL17sc Calibration Verification Kit
- 8573200** CL17sc Calibration Verification Refill Kit
- 8560500** CL17sc Standpipe Installation Kit (< 10 psi sample pressure to Y-strainer)
- 8565700** CL17sc Pressure Regulator Installation Kit
- 8576001** CL17sc Standpipe Installation Kit (> 10 psi sample pressure to Y-strainer)

### Reagents and Consumables

- 8560400** CL17sc Tubing Kit (pre-assembled)
- 8573100** CL17sc Cell Cleaning Kit
- 2556900** Set includes: CL17 DPD Indicator, CL17 Free Chlorine Indicator Solution, and CL17 Free Chlorine Buffer Solution.
- 2557000** Set includes: CL17 DPD Indicator, CL17 Total Chlorine Indicator Solution, and CL17 Total Chlorine Buffer Solution.

*Part numbers may vary by country.*

**Learn More**





# Ultra Low Range CL17sc Colorimetric Chlorine Analyzer

## Total chlorine confidence. From the global leader in chlorine analysis.

Meet your unique water cycle needs with the new Ultra Low Range CL17sc online total chlorine analyzer from Hach®. Whether treating utility water, product water, or wastewater discharge, you'll have the direct chlorine measurements you need to optimize your process. You'll be able to protect valuable assets and report to regulatory agencies with confidence.



## Monitor and Optimize your Dechlorination process

Chlorine breakthroughs can adversely affect your process, product, or equipment. You'll be able to mitigate issues and optimize your process with the Hach Ultra Low Range CL17sc analyzer, which has the lowest limit of detection at less than 8 ppb. It's time to accurately measure your total residual chlorine and take control of your dechlorination process.

## Depend on direct measurements

Online residual chlorine measurement options for ultra-low range have been either inadequate or inefficient – until now. The Ultra Low Range CL17sc gives you direct total chlorine results, eliminating the need for ORP or amperometric measurement. The Ultra Low Range CL17sc uses colorimetric DPD Standard Method 4500-Cl G and consistently maintains accuracy without loss of sensitivity in your new target range.

## Protect your assets

Understand the true impact of chlorine exposure. The Ultra Low Range CL17sc allows for process control across your water cycle, including visibility into GAC exhaustion or channeling and dechlorinating agent dosage. It is the only instrument with a cumulative chlorine counter, which helps you forecast your RO membrane efficiency and its useful life.

## Smart Monitoring Enabled

The new Ultra Low Range CL17sc analyzer is Smart Monitoring enabled, providing real-time visibility into your processes so you can optimize and automate your chlorination/dechlorination. You'll have peace of mind and more time to focus on high-value tasks.

## Order Information

Hach Ultra Low Range CL17sc Colorimetric Chlorine Analyzers are shipped with an installation kit, user manual, and one month of reagents where noted. The user selects a standpipe installation kit or a pressure regulator installation kit at the time of purchase. Hach SC controllers are required for operation and are sold separately.

### Ultra Low Range CL17sc Colorimetric Chlorine Analyzers

- 9790200** Ultra Low Range CL17sc Colorimetric Chlorine Analyzer with Standpipe Installation Kit
- 9790300** Ultra Low Range CL17sc Colorimetric Chlorine Analyzer with Pressure Regulator Installation Kit
- 9793300** Ultra Low Range CL17sc Colorimetric Chlorine Analyzer with Standpipe Installation Kit and Reagents for Total Chlorine
- 9793400** Ultra Low Range CL17sc Colorimetric Chlorine Analyzer with Pressure Regulator Installation Kit and Reagents for Total Chlorine

### Accessories

- 8568200** CL17sc Calibration Verification Kit
- 8573200** CL17sc Calibration Verification Refill Kit
- 8560500** CL17sc Standpipe Installation Kit (< 10 psi sample pressure to Y-strainer)
- 8565700** CL17sc Pressure Regulator Installation Kit

### Reagents and Consumables

- 9791100** Ultra Low Range Total Chlorine Reagents Set
- 8560400** CL17sc Tubing Kit (pre-assembled)
- 8573100** CL17sc Cell Cleaning Kit

*Part numbers may vary by country.*

## Learn More



# CLF10sc & CLT10sc Free & Total Reagentless Chlorine Analyzers

## Hach's answer to reagentless amperometric chlorine measurement

### Exclusive Self Diagnostics

The CLF10sc and CLT10sc analyzers leverage Hach's exclusive self diagnostics to alert users when the process has changed or the instrument needs servicing. Diagnostic features include the Cal Watch algorithm for warning of pH and chlorine calibration deviation and a non-contacting flow sensor for notification of insufficient sample flow.

### No Reagent Replacement, No Waste Stream

Chlorine measurement with an amperometric analyzer, such as the CLF10sc or CLT10sc, does not require reagents, eliminating the need for routine reagent replacement and waste stream management.

### Real-Time Process Control

The CLF10sc and CLT10sc analyzers allow for real-time control of disinfection processes by providing continuous readings that indicate when treatment conditions have changed.

### Compatible with Hach's "Plug and Play" Digital SC Controllers

The CLF10sc and CLT10sc analyzers can be used with any Hach digital SC controller. Whether you are measuring turbidity or chlorine, you only need to learn one controller for all your water analysis measurement points. Hach SC controllers have no complicated wiring or setup procedures. Just plug in any Hach digital sensor and it's ready to use without software configuration.

### EPA Compliant According to Method 334.0

In accordance with EPA Method 334.0, the CLF10sc and CLT10sc analyzers can be used for reporting chlorine residual measurements. Additionally, Hach has created a suite of laboratory products and methods to help with startup and quality control procedures required in Method 334.0.



## Order Information

### CLF10sc Free Chlorine Analyzer

- LXV45A.99.11022** CLF10sc Free Chlorine Analyzer (Panel Only) Grab Sample
- LXV45A.99.12022** CLF10sc Free Chlorine Analyzer (Panel Only) with Combination pH Sensor
- LXV45A.99.13022** CLF10sc Free Chlorine Analyzer (Panel Only) with pHD Differential Sensor

### CLT10sc Total Chlorine Analyzer

- LXV45B.99.11022** CLT10sc Total Chlorine Analyzer
- LXV45B.99.12022** CLT10sc Total Chlorine Analyzer (Panel Only) with Combination pH Sensor
- LXV45B.99.13022** CLT10sc Total Chlorine Analyzer with pHD Differential Sensor

### Accessories and Replacement Parts

- LZY051** Acidification/Cleaning Unit for Amperometric Sensors
- 9159900** Sample Conditioning Kit
- 9181500** pHD Differential Analog pH Sensor, PPS
- 9181600** Combination Analog pH Sensor, PPS
- 8626200** Replacement Sensor for CLF10sc, SS Tip
- 8628900** Replacement Sensor for CLT10sc, SS Tip
- 8633100** Replacement Membrane Kit for CLF10sc and CLT10sc, SS Tip
- 9160600** Electrolyte for Free Chlorine Sensor, 100 mL
- 9181400** Electrolyte for Total Chlorine Sensor, 100 mL

Learn More



# Chlorine Analyzer Quick Reference Guide



Model	CL17sc	ULR CL17sc	CLF10sc/CLT10sc
Parameter	Free Chlorine, Total Chlorine	Total Chlorine	Free Chlorine (CLF10sc), Total Chlorine (CLT10sc)
Measurement Method	Colorimetric	Colorimetric	Reagentless, electrochemical, three-electrode amperometric system
Application	Drinking Water Wastewater Food and Beverage Pharmaceutical Power Semiconductor	Drinking Water Wastewater Food and Beverage Pharmaceutical Power Semiconductor	Drinking Water Process Water Wastewater and Reused Water Power
Range	0 - 10 mg/L free or total residual chlorine	0.008 - 5 mg/L Cl <sub>2</sub>	0 - 20 ppm Cl <sub>2</sub>
Lower Limit of Detection (LOD)	0.03 mg/L	0.008 mg/L Cl <sub>2</sub> at 25 °C	30 ppb (0.03 ppm)
Accuracy	± 5% or ± 0.04 mg/L (whichever is greater) from 0 - 5 mg/L Cl <sub>2</sub> ± 10% from 5 - 10 mg/L Cl <sub>2</sub>	± 5% or ± 0.01 mg/L (whichever is greater) from 0 - 4 mg/L; ± 10% from 4 - 5 mg/L	<b>Free Chlorine:</b> ±3% of the reference test (DPD) at constant pH less than 7.2 (±0.2 pH unit) ±10% of the reference test (DPD) at stable pH less than 8.5 (±0.5 pH unit from the pH at calibration)  <b>Total Chlorine:</b> ±10% of the reference test (DPD) at stable pH less than 8.5 (±0.5 pH unit from the pH at calibration) ±20% of the reference test (DPD) at stable pH greater than 8.5
Interferences	Other oxidizing agents such as bromide, chlorine dioxide, permanganate, and ozone will cause a positive interference. Hardness must not exceed 1,000 mg/L CaCO <sub>3</sub> .	Other oxidizing agents such as bromide, chlorine dioxide, permanganate, and ozone will cause a positive interference.	Free chlorine: monochloramine, chlorine dioxide, ozone, and chalk deposits. Total chlorine: chlorine dioxide, ozone and chalk deposits
Reagent Consumption	0.5 L of buffer solution and 0.5 L of indicator solution in 31 days	0.5 L of buffer solution and 0.5 L of indicator solution in 31 days	
Sample Temperature	5 - 40 °C (41 - 104 °F)	5 - 40 °C (41 - 104 °F)	5 - 45 °C (41 - 113 °F)
Light Source	LED, measurement at 510 nm, 1 cm light pathlength	LED, measurement at 510 nm, 1 cm light pathlength	
Certifications	CE compliant with: EN 61326-1, CISPR 11, EN 50581 ACMA RCM South Korea KC Certificate North America: FCC Supplier's Declaration of Conformance, IEC/EN 60529, ICES-003	CE compliant with: EN 61326-1, CISPR 11, EN 50581 ACMA RCM South Korea KC Certificate North America: FCC Supplier's Declaration of Conformance, IEC/EN 60529, ICES-003	CE compliant for conducted and radiated emissions: - CISPR 11 (Class A limits) - EMC Immunity EN 61326-1 (Industrial limits) Additional certifications when connected to an SC controller
Dimensions (H x W x D)	342 x 329 x 177 mm (13.46 x 12.95 x 6.97 in.)	342 x 329 x 177 mm (13.46 x 12.95 x 6.97 in.)	483 x 495 x 151 mm (19 x 19.5 x 5.9 in.)
Weight	4.1 kg (9.0 lbs.)	4.1 kg (9.0 lbs.)	Approximately 5.5 kg (12 lbs) Panel and empty panel-mounted components only
Controller Compatibility	Digital SC Controller		

Please note that a Hach SC controller is required for operation, controller must be purchased separately.

\*Subject to change without notice.

# 9187sc Amperometric Chlorine Dioxide Sensor



## Smart Amperometric Chlorine Dioxide Sensor

### Selective Membrane Avoids Interference from other species

The Hach 9187sc Amperometric Chlorine Dioxide sensor uses a membrane that is selective for chlorine dioxide species. There are no interferences from bromine, chlorine or hydrogen peroxide. The only potential interference is from ozone, which is rarely present in water treated with chlorine dioxide.

### Easy Setup and Maintenance

The all-inclusive 9187sc  $\text{ClO}_2$  system comes preassembled on a panel. The membrane system of the sensor means there are no chemicals used for measurement. Maintenance is minimal and two years of typical maintenance items are included with the system.

### Compatible with Hach's "Plug and Play" Digital SC Controllers

The 9187sc  $\text{ClO}_2$  sensor is designed to be used with Hach SC digital controllers. Set up is fast and easy, and the system is compatible with the full line of Hach digital sensors.

### Technical Data\*

Range	0 - 2 mg/L $\text{ClO}_2$
Lower Limit of Detection (LOD)	0.01 mg/L $\text{ClO}_2$
Accuracy	5% or $\pm 10$ ppb $\text{ClO}_2$ , whichever is greater
Response Time	90% in less than 90 seconds
Flow	14 L/h (200 - 250 mL/min) auto-regulated by flow through cell
Pressure Range	0.1 - 2 bar in flow cell
Sample Temperature	2 - 45 °C (35.6 - 113 °F)
Measuring Principle	Amperometric/Membrane (electrode, membrane, electrolyte)
Interferences	None
Calibration Method	Zero Calibration: Electrically or with ozone-free water Calibration: Comparison of lab method with process sample
Calibration Interval	2 months
Mounting	Flat, vertical surface (panel, stand, etc.)
Maintenance Interval	6 months for membrane and electrolyte (measurement cell)
Enclosure Rating	IP66 / NEMA 4X
Weight	6.5 kg (14.33 lb)
Controller Compatibility	Digital SC Controller

*\*Subject to change without notice.*

### Order Information

**LXV434.99.00001** 9187sc Amperometric Chlorine Dioxide Sensor

*Please note: A digital Hach SC controller is required for operation, controller is sold separately.*

### Accessories and Replacement Parts

<b>LZY051</b>	Acidification/Cleaning Unit for Amperometric Sensors
<b>LZY052</b>	Intermittent Flow Unit
<b>5743200</b>	Floor Stand
<b>5867000</b>	Digital Termination Box
<b>09184-A=1001</b>	Replacement Chlorine Electrode
<b>09187-A=3500</b>	Membranes for 9187sc Sensor, pk/4
<b>09187-A=3600</b>	Electrolyte for 9187sc Sensor, 100 mL

*Part numbers may vary by country.*

Learn More





# 3400 Digital and Analog Contacting Conductivity Sensors

## 3400sc Digital Contacting Conductivity Sensors

These enhanced performance sensors are manufactured to exacting tolerances using high quality, rugged materials for demanding applications including ultra-pure water, clean-in-place (CIP), and boiler/condensate monitoring. Each sensor is tested to determine its unique, absolute four-digit cell constant. Also, each sensor has a PT1000 RTD temperature element built into its tip for exceptionally fast response to changes in temperature with  $\pm 0.1^\circ\text{C}$  accuracy.

The sensors measure from theoretically pure water ( $0.057\ \mu\text{S}/\text{cm}$  or  $18.2\ \text{M}\Omega$ ) up to  $200,000\ \mu\text{S}/\text{cm}$ . Hach's Digital SC Controllers accept multiple digital sensor inputs, and can be user-set to measure conductivity, resistivity, TDS, salinity, or one of six calculated measurements.

Compression fitting sensors feature titanium electrodes and a compression fitting for universal installation with up to 4 inches (102 mm) insertion depth. The 1/2-inch or 3/4-inch



male NPT compression fittings are offered in PVDF or 316 stainless steel. A longer version of this sensor is available for use with a 316 stainless steel ball valve hardware assembly to insert/retract the sensor from the process without stopping the flow. The longer version can also be used for insertion through a compression fitting. Maximum insertion depth is 7 inches (178 mm).

### Order Information

Prod. No.	Cell Constant k	Range	Installation style	Installation Kit	Installation Requirement
D3422A2	0.05 cm <sup>-1</sup>	0 - 100 $\mu\text{S}/\text{cm}$	Compression	1/2" NPT	316 Stainless Steel
D3422C3	1.0 cm <sup>-1</sup>	0 - 2000 $\mu\text{S}/\text{cm}$	Compression	3/4" NPT	PVDF
D3422B3	0.5 cm <sup>-1</sup>	0 - 1000 $\mu\text{S}/\text{cm}$	Compression	3/4" NPT	PVDF
D3422D3	5.0 cm <sup>-1</sup>	0 - 10000 $\mu\text{S}/\text{cm}$	Compression	3/4" NPT	PVDF
D3422E3	10 cm <sup>-1</sup>	0 - 200000 $\mu\text{S}/\text{cm}$	Compression	3/4" NPT	PVDF
D3433B8	0.5 cm <sup>-1</sup>	0 - 1000 $\mu\text{S}/\text{cm}$	General purpose	3/4" NPT	PPS sensor body
D3433E8	10 cm <sup>-1</sup>	0 - 200000 $\mu\text{S}/\text{cm}$	General purpose	3/4" NPT	PPS sensor body
D3444B8	0.5 cm <sup>-1</sup>	0 - 1000 $\mu\text{S}/\text{cm}$	Boiler/Condensate	3/4" NPT	316 Stainless Steel sensor body
D3444D8	5.0 cm <sup>-1</sup>	0 - 10000 $\mu\text{S}/\text{cm}$	Boiler/Condensate	3/4" NPT	316 Stainless Steel sensor body
D3422A1	0.05 cm <sup>-1</sup>	0 - 100 $\mu\text{S}/\text{cm}$	Compression	1/2" NPT	PVDF
D3455A6	0.05 cm <sup>-1</sup>	0 - 100 $\mu\text{S}/\text{cm}$	Sanitary flange	1-1/2" Flange	316 Stainless Steel

Please note that a Hach SC controller is required for operation, controller must be purchased separately.

## 3400 Analog Contacting Conductivity Sensors

### Order Information

Prod. No.	Cell Constant k	Range	Junction box	Material	Electrode Material
3422A1A	0.05 cm <sup>-1</sup>	0 - 100 $\mu\text{S}/\text{cm}$	None	Compression Fitting: 1/2" NPT PVDF	Titanium
3422A3A	0.05 cm <sup>-1</sup>	0 - 100 $\mu\text{S}/\text{cm}$	None	Compression Fitting: 3/4" NPT PVDF	Titanium
3422B3A	0.5 cm <sup>-1</sup>	0 - 1000 $\mu\text{S}/\text{cm}$	None	Compression Fitting: 3/4" NPT PVDF	Titanium
3422E3A	10 cm <sup>-1</sup>	0 - 200000 $\mu\text{S}/\text{cm}$	None	Compression Fitting: 3/4" NPT PVDF	Titanium
3422C3A	1 cm <sup>-1</sup>	0 - 2000 $\mu\text{S}/\text{cm}$	None	Compression Fitting: 3/4" NPT PVDF	Titanium
3422D3A	5 cm <sup>-1</sup>	0 - 10000 $\mu\text{S}/\text{cm}$	None	Compression Fitting: 3/4" NPT PVDF	Titanium
3433E8A	10 cm <sup>-1</sup>	0 - 200000 $\mu\text{S}/\text{cm}$	None		Graphite

### Learn More



# 3700 Digital and Analog Inductive Conductivity Sensors



Learn More



## 3700sc Digital Inductive Conductivity Sensors

Hach's Inductive Conductivity Sensors measure 200 up to 2,000,000 microSiemens/cm. A built-in PT1000 RTD compensates the measured conductivity for changes in process temperature. The inductive sensor design eliminates polarization and electrode coating problems that commonly affect conventional contacting electrode-type conductivity sensors. All 3700sc sensors come complete with a Digital Gateway for use with a Hach Digital SC Controller.

### Order Information

Prod. No.	Material	Range	Mounting
D3727E2T	PEEK	200 $\mu$ S/cm - 2000 mS/cm	Convertible
D3705E2T	Polypropylene	200 $\mu$ S/cm - 2000 mS/cm	Sanitary
D3706E2T	PVDF	200 $\mu$ S/cm - 2000 mS/cm	Sanitary
D3708E2T	PFA	200 $\mu$ S/cm - 2000 mS/cm	Sanitary
D3725E2T	Polypropylene	200 $\mu$ S/cm - 2000 mS/cm	Convertible
D3726E2T	PVDF	200 $\mu$ S/cm - 2000 mS/cm	Convertible
D3728E2T	PFA	200 $\mu$ S/cm - 2000 mS/cm	Convertible

*Please note that a Hach SC controller is required for operation, controller must be purchased separately.*



Learn More



## 3700 Analog Inductive Conductivity Sensors

### Order Information

Prod. No.	Material	Range	Mounting
3708E2T	Sensor Body: PFA	200 $\mu$ S/cm - 2000000 mS/cm	Sanitary
3725E2T	Sensor Body: Polypropylene (PP)	200 $\mu$ S/cm - 2000000 mS/cm	Convertible
3725E2T20G	Polypropylene (PP)	200 $\mu$ S/cm - 2000000 mS/cm	Convertible
D3726E2T	PVDF	200 $\mu$ S/cm - 2000 mS/cm	Convertible
D3727E2T	PEEK	200 $\mu$ S/cm - 2000 mS/cm	Convertible
D3728E2T	PFA	200 $\mu$ S/cm - 2000 mS/cm	Convertible
3728E2T20G	PFA	200 $\mu$ S/cm - 2000 mS/cm	Convertible

*Additional sensors are available, please visit [hach.com](http://hach.com) or contact your local sales representative for more information.*

# 3798sc Digital Inductive Conductivity Sensor

Immersion probe with integrated AD electronics, for operation with SC controller. Specially designed for use in municipal and industrial waste water.

**Proven sensor with digital technology**

**Inductive sensor for heavily soiled media**

**Factory-calibrated**

**Plug and play with SC controllers**



## Order Information

Prod. No.	Description
LXV428.99.00001	3798-S sc Digital inductive conductivity sensor, 10 m cable

*Please note: A digital Hach SC controller is required for operation, controller is sold separately.*

## Technical Specifications\*

Range	250 $\mu$ S/cm - 2500 mS/cm
Accuracy	$\pm 1\%$ of actual value or $\pm 0.004$ mS/cm whichever is greater
Response Time T90	< 2 s
Reproducibility	< 0.2%
Interface	Modbus
Cable Length	10 m hard wired, Polyurethane
Material	Stainless steel metal housing, PEEK, Polyurethane, PPS
Sensor Immersion Depth	20 m / 2 bar
Flow	< 4 m/s
Storage Conditions	-20 - 60 °C (-4 - 140 °F), 95% relative humidity (non-condensing)
Dimensions (D x L)	43 x 370 mm (1.7 x 14.6 in.)
Weight	< 1 kg (2.2 lb)
Enclosure Rating	IP68
Certifications	CE (incl. RoHS)

*\*Subject to change without notice.*

**Learn More**





# 9525sc Degassed Cation Conductivity System

**Simple to Integrate.  
Simple to Operate.**

An integral part of a complete Power water analytics system, Hach®'s degassed cation conductivity (DCCP) system measures specific conductivity (SC), cation conductivity (CC), and degassed cation conductivity (DCC) and helps to reduce plant start-up time and distinguish between air and water contamination in UPW (Ultra Pure Water) cycles. This comprehensive approach saves you time on design, installation, training, maintenance, and operation.

## Reliable measurements

Hach's newly redesigned Degassed Cation Conductivity Analyzer efficiently removes CO<sub>2</sub> from the sample to deliver fast reliable results that save you critical time and effort.

## Space-Saving Design

Compact, wall mounted footprint to allow for easy integration into existing or new SWAS systems.

## Easy and Safe Handling

The new 9525sc requires no additional cooling water supply but instead allows for a regenerative cooling option and condenses the steam to allow for safe discharge via a vent drain.

### Technical Data\*

<b>Dimensions (H x W x D)</b>	Degas System and DCCP System: 914 mm x 622 mm x 380 mm (36 x 24.5 x 15 inches)
<b>Weight</b>	27.7 kg (61 lb) for Degas System 50 kg (110 lb) for DCCP System
<b>Power Requirements (Voltage)</b>	110 - 120 VAC
<b>Power Requirements (Hz)</b>	60 Hz
<b>Main Supply Voltage Fluctuation</b>	±10 % of nominal voltage
<b>Power Consumption</b>	1.6 k VA
<b>Operating Temperature Range</b>	Recommended operating temperature: 23 - 27 °C (75 - 80 °F)
<b>Ambient Temperature</b>	2 - 50 °C (36 - 122 °F)
<b>Storage Conditions</b>	0 - 50 °C (32 - 120 °F) 0 - 85% relative humidity, non-condensing
<b>Cell Constant k</b>	0.01 cm <sup>-1</sup>
<b>Measuring Range Conductivity</b>	0.01 - 200 µS/cm
<b>Accuracy</b>	< 2%
<b>Power Requirements Controller</b>	100 - 240 VAC ±10%, 50/60 Hz
<b>Enclosure Rating</b>	IP66 / NEMA 4X
<b>Flow</b>	100 - 150 cc/min (mL/min); 6 - 9 L/h
<b>Fitting Type</b>	Sample inlet/outlet connections: ¼ inch tube fitting
<b>Sample Cooler Type</b>	DTC-DCCP
<b>Cooling Water</b>	0.8 L/min (0.2 gpm)
<b>Certifications</b>	CE, UL, CSA

*\*Subject to change without notice.*

### Order Information

#### Degas System

<b>9525.99.0010DG</b>	Hach 9525sc System, Degassed Conductivity only
<b>9525.99.10CCDG</b>	Hach 9525sc System, Specific Conductivity, Cation Conductivity, Calculated pH and Degassed Cation Conductivity
<b>9525.99.0011</b>	Hach 9525sc System, Degassed Conductivity only, with Regenerative Cooler
<b>9525.99.10CCR</b>	Hach 9525sc System, Specific Conductivity, Cation Conductivity, Calculated pH and Degassed Cation Conductivity, with Regenerative Cooler
<b>9523.99.01P4</b>	Polymetron 9523 Specific and Cationic Conductivity Analyzer, and pH Calculator with Modbus Communication, 100 - 240 VAC
<b>9523.99.03P4</b>	Polymetron 9523 Specific and Cationic Conductivity Analyzer, and pH Calculator with Profibus Communication, 100 - 240 VAC
<b>9523.99.05P4</b>	Polymetron 9523 Specific and Cationic Conductivity Analyzer, and pH Calculator with Hart Communication, 100 - 240 VAC

#### Accessories

<b>9525.99.7030</b>	Degas System Heater, 120 V
<b>9525.99.7050</b>	Degas Temperature Controller
<b>9525.99.7060</b>	Degas System Sample Cooler
<b>4643600</b>	Flow meter, 1.2 - 18 L/h, with ¼" OD tubing fittings
<b>694=000=001</b>	Adjustable flow meter, 0 to 16 L/h
<b>09523=A=7000</b>	Spare Resin Cartridge (includes resin inside)
<b>8617700</b>	Resin Column Refill Bag for 9525sc DCCP

*Part numbers may vary by country.*

**Learn More**





# Dissolved Oxygen: Hach LDO sc Probe, Model 2

## Accurate monitoring of dissolved oxygen in source water and for precise aeration process control

### No Calibration Required

The Hach LDO sc probe uses luminescent dissolved oxygen technology. Traditional membrane style DO probes require sensor calibration, which increase maintenance requirements.

### No Membranes to Replace

There is virtually no maintenance with Hach's breakthrough luminescent technology. There are no membranes to replace, no electrolyte solution to replenish, and no anode or cathode to clean.

### No Missed Cleaning Cycles

The Hach LDO sc probe is equipped with Prognosys, a predictive diagnostic system, that allows you to be proactive in your maintenance by alerting you to upcoming instrument issues. Know with confidence whether changes in your dissolved oxygen level measurements are due to changes in your instrument or your water. To make sure routine cleaning cycles are never missed, the probe offers operators customizable diagnostic alert indicators, ensuring the probe can operate at its maximum performance level.

Customizable service indicators trigger a service message so that a cleaning cycle is never missed.

### No Drift Technology

Cutting-edge 3D calibration procedure is conducted prior to shipping, the DO probe will not drift and is more accurate than ever before, compared to membrane style probes.

### No Complications

Our newest Model 2 DO probe has a robust design with a smaller footprint allows for easier handling with enhanced durability.



Learn More



### Technical Data\*

Range	0 - 20.00 ppm
	0 - 20.00 mg/L
	0 - 200% saturation
Accuracy	Below 5 ppm: $\pm 0.1$ ppm
	Above 5 ppm: $\pm 0.2$ ppm
Response Time	$T_{90} < 40$ s
	$T_{95} < 60$ s
Resolution	0.01 ppm (mg/L)
	0.1% saturation
Repeatability	$\pm 0.1$ ppm (mg/L)
Flow Rate	None required
Sensor Immersion Depth	Down to 34 m (112 ft.), 345 kPa (50 psi), maximum; accuracy may not be maintained at this depth
Transmission Distance	400 m (1312 ft.) maximum when used with a termination box
Cable Length	10 m (options with 30 m, 60 m)
Dimensions (D x L)	48.25 x 254 mm (1.9 x 10 in.)
Weight	1 kg (2.2 lbs), probe only
Warranty	36 months

\*Subject to change without notice.

### Order Information

#### Sensor

<b>9020000</b>	Hach LDO 2 sc Dissolved Oxygen Probe
<b>9020000-UPGRADE</b>	Hach LDO 2 sc Dissolved Oxygen Probe, with Mounting Conversion Adapter

Please note that a Hach SC controller is required to operate the LDO sc sensor, controller must be purchased separately.

#### Accessories

<b>5867000</b>	Digital Termination Box
<b>5796000</b>	Digital Extension Cable, 7.7 m (25 ft.)
<b>5796100</b>	Digital Extension Cable, 15 m (50 ft.)
<b>5796200</b>	Digital Extension Cable, 30 m (100 ft.)
<b>6860000</b>	High Output Air Blast Cleaning System, 115 VAC
<b>6860100</b>	High Output Air Blast Cleaning System, 230 Vac
<b>9253500</b>	Air Blast Hardware Components

#### Replacements and Parts

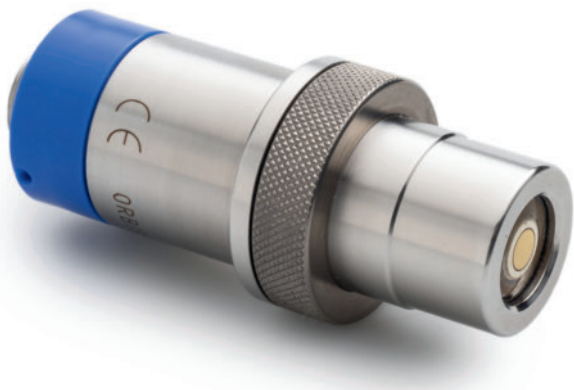
<b>9021100</b>	LDO sc Model 2 Sensor Cap Replacement Kit
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#### Mounting Kits

<b>9253000</b>	Pole Mount Kit, PVC
<b>9253100</b>	Ball Float Mount Kit, PVC
<b>9257000</b>	Union Mount Kit, PVC
<b>9253400</b>	Mounting Conversion Adapter, LDO sc Model 1 to LDO sc Model 2
<b>7300800</b>	1" NPT sc Sensors Flow Cell

Part numbers may vary by country.

# Ultra Pure Water Orbisphere GA2400/GA2800 Oxygen Sensors



## Highly accurate and customizable oxygen measurement for all environments

The Hach® Orbisphere GA2400 & GA2800 EX oxygen (O<sub>2</sub>) Electrochemical (EC) sensors are designed for process monitoring of dissolved oxygen in ppm or ppb environments. It can also be utilized as part of laboratory analysis of oxygen in the liquid or gas phases.

The Hach Orbisphere GA2400 can be used for a wide range of non-harsh applications, including beer or soft-drinks production, rinsing of semiconductor waters in chip-manufacturing plants, and reactor coolant systems in nuclear power plants.

The Hach Orbisphere GA2800 EX sensor is suitable for harsh environments, including chemical, oil, or petrochemical plants.

There are several different pre-mounted membrane kits, able to be customized to fulfill any particular process requirements and oxygen measurement ranges required. This allows for low measurement ranges of 0.1 ppb, or even very high measurement ranges of 400 ppm.

## Easy and fast maintenance

Traditional cleaning processes can take more than thirty minutes to complete. The GA2400 and GA2800 EX come with an innovative cartridge system that contains everything needed to complete membrane and electrolyte solution change in less than 5 minutes.

## Low level oxygen measurement and unrivaled accuracy

The Hach Orbisphere GA2400 and GA2800 EX utilize an electrochemical oxygen sensor with a lower detection level of 0.1 ppb and unrivaled highly accurate readings of  $\pm 1\%$ . This feature allows users to ensure control of low oxygen levels, for product and equipment integrity and avoiding corrosion.

## Robust for harsh environments

The robust stainless steel or Hastelloy design makes the GA2400 and GA2800 EX sensor ideal for the most demanding applications. ATEX certification comes standard in all GA2800 units, making the sensor especially suitable for harsh chemical environments.

Learn More



## Technical Data\*

Model	GA2400	GA2800 EX
<b>Certifications</b>	CE	CE, Ex II 1 G, Ex ia IIC T6
<b>Wetted Materials</b>	Stainless Steel 1.4404 (AISI 316L) No O-rings are in contact with the sample	Hastelloy or Stainless Steel No O-rings are in contact with the sample
<b>Pressure resistance</b>	40 bar minimum with default PPS collar (100 bar with stainless steel collar)	
<b>Temperature resistance</b>	-5 - 100 °C (23 - 212 °F)	
<b>Flow Rate</b>	Recommended flow rate in flow chamber 2935A-A: 25 mL/min 2952A-A: 50 mL/min 2956A-A: 180 mL/min 29552A-A: 50 mL/min	
<b>Protection Class</b>	IP66	
<b>Range</b>	Range at 25 °C (77 °F) 2935A-A: 10 ppb - 400 ppm or 20 Pa - 1,000 kPa 2952A-A: 1 ppb - 80 ppm or 5 Pa - 200 kPa 2956A-A: 0.1 ppb - 20 ppm or 0.25 Pa - 50 kPa 29552A-A: 2 ppb - 80 ppm or 5 Pa - 200 kPa	
<b>Accuracy</b>	Accuracy = Trueness (ISO 57251) 2935A-A: The greater of ±1% of reading or ± 10 ppb, or ± 20 Pa 2952A-A: The greater of ±1% of reading or ± 2 ppb, or ± 5 Pa 2956A-A: The greater of ±1% of reading or ± 0.1 ppb <sup>1</sup> , or ± 1 ppb <sup>2</sup> , or ± 0.25 Pa 29552A-A: The greater of ±1% of reading or ± 2 ppb, or ± 5 Pa  <sup>1</sup> Accuracy is ± 0.1 ppb for 410, 510, 362x, 360x and 3655 instruments <sup>2</sup> Accuracy is ± 1 ppb for 366x and 3650 instruments	
<b>Response Time</b>	Response time at 25 °C (77 °F) for a 90% signal change 2935A-A: 2.5 min 2952A-A: 38 s 2956A-A: 7.2 s 29552A-A: 90 s	
<b>Temperature Compensation</b>	-5 - 60 °C (23 - 140 °F)	
<b>Weight</b>	0.3 kg (0.66 lbs)	

\*Subject to change without notice.

## Order Information

## GA2400 Oxygen Sensors

**GA2400-S00** Orbisphere GA2400 Stainless Steel Oxygen Sensor (EC), 40 bar, EPDM O-rings**GA2400-S00T** Orbisphere GA2400 Stainless Steel Oxygen Sensor (EC) or 6110 TPO Analyser, 40 bar, EPDM O-rings**GA2400-S0S** Orbisphere GA2400 Stainless Steel Oxygen Sensor (EC), 100 bar, EPDM O-rings

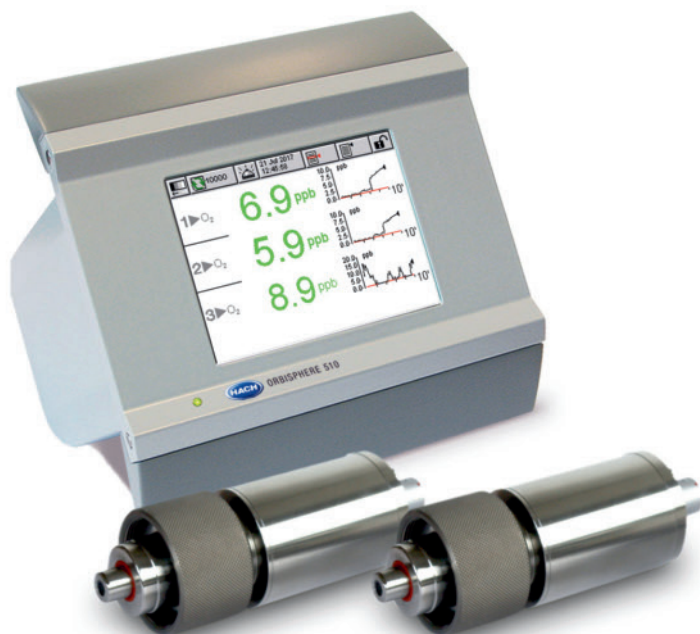
## GA2800 ATEX Oxygen Sensors

**GA280E-HKS** Orbisphere GA2800 ATEX Oxygen Sensor (EC), Hastelloy, 100 bar, FFKM/FFPM O-rings**GA280E-HVS** Orbisphere GA2800 ATEX Oxygen Sensor (EC), Hastelloy, 100 bar, FKM/FPM O-rings**GA280E-SKS** Orbisphere GA2800 ATEX Oxygen Sensor (EC), Stainless Steel, 100 bar, FFKM/FFPM O-rings**GA280E-SVS** Orbisphere GA2800 ATEX Oxygen Sensor (EC), Stainless Steel, 100 bar, FKM/FPM O-rings

## Accessories

**33051-S0** Protection cap for GA2400 oxygen sensors, stainless steel, 28 mm, without grille**33051-SP** Protection cap for GA2400 oxygen sensors, stainless steel, 28 mm, with grille**32001.011** Flow chamber in stainless steel (316) with ¼" fittings. Supplied with EPDM O-rings.**32001.010** Flow chamber in stainless steel (316) with 6 mm fittings. Supplied with EPDM O-rings.**2952A-A** Recharge kit of 4 pre-filled cartridges with premounted 2952A membranes**29552A-A** Recharge kit of 4 pre-filled cartridges with premounted 29552A membranes**29552A-AV** Recharge kit, 29552A membranes (4x), FKM/FPM O-rings**2956A-A** Recharge kit of 4 pre-filled cartridges with premounted 2956A membranes**2956A-AV** Recharge kit, 2956A membranes (4x), FKM/FPM O-rings**29781** Polishing kit for O<sub>3</sub> and H<sub>2</sub> sensors, incl. 3 µm powder (29331) and cloth**32301.A** Electrochemical sensor cleaning and regeneration unit, 115 VAC

# Orbisphere K1100 Luminescent Dissolved Oxygen Sensor



## The original maintenance-free optical oxygen sensor for power plants.

The Orbisphere K1100 optical sensor, together with the Orbisphere 410 single channel controller and the Orbisphere 510 multichannel controller, offers the simplest way to monitor oxygen in power plants. Orbisphere sensors set the industry standards for oxygen measurement by offering peace of mind to every water chemist.

### One calibration per year

One zero point calibration per year is all that is needed with the K1100 sensor. Designed for minimal drift, luminescent technology makes the K1100 sensor the most stable sensor with the longest calibration interval in the industry.

### No membranes = two minutes of maintenance

With no membranes to replace and no electrolyte solution to replenish, the K1100 requires only two minutes of maintenance per year. Corrosive or hazardous chemicals are not required, making the annual task faster, easier and safer without reducing measurement precision.

### Low cost retrofit

The complete system consists of a controller, a flow chamber, and the K1100 Luminescent Dissolved Oxygen sensor. The sensor is compatible with Hach Orbisphere 28 mm flow chambers, eliminating the need for engineering changes. Installation is fast and easy and does not require special preparation.

### A new level of confidence

The K1100 optical sensor is the first to use luminescent measurement technology to measure both ppb and ppm oxygen levels in power plants. Since 1978, Hach Orbisphere sensors have set the industry standard for oxygen measurement by delivering confidence to every water chemistry manager. The K1100 maintains this tradition and offers significant operating and cost benefits.

**Learn More**





**Technical Data\*****K1100 (Low Level Sensor)**

<b>Range</b>	0 - 2000 ppb dissolved O <sub>2</sub> (DO)
<b>Temperature Range</b>	Accurate from -5 - 50 °C (23 - 122 °F) Resistant - temperature from -5 - 100 °C (23 - 212 °F)
<b>Repeatability</b>	± 0.4 ppb or 1 % whichever is greater
<b>Reproducibility</b>	± 0.8 ppb or 2 % whichever is greater
<b>Accuracy</b>	± 0.8 ppb or 2 % whichever is greater
<b>Lower Limit of Detection (LOD)</b>	0.6 ppb
<b>Response Time</b>	(90%) <10 s (gas phase); <30 s (liquid phase)
<b>Display Resolution</b>	0.1 ppb
<b>Calibration</b>	Single point zero calibration with standard 99.999% nitrogen (quality 50) or equivalent oxygen free gas
<b>Sample Pressure</b>	1 - 20 bar absolute (14.5 - 290 psia)

**K1100 (High Level Sensor)**

<b>Range</b>	0 - 40 ppm dissolved O <sub>2</sub> (DO)
<b>Temperature Range</b>	Accurate from -5 - 50 °C (23 - 122 °F) Resistant - temperature from -5 - 100 °C (23 - 212 °F)
<b>Repeatability</b>	± 0.015 ppm or 2 % whichever is greater
<b>Reproducibility</b>	± 0.02 ppm or 3 % whichever is greater
<b>Accuracy</b>	± 0.02 ppm or 3 % whichever is greater
<b>Lower Limit of Detection (LOD)</b>	0.015 ppm
<b>Response Time</b>	(90%) <10 s (gas phase); <50 s (liquid phase)
<b>Display Resolution</b>	0.1 ppb
<b>Calibration</b>	Two points at cap replacement (zero and air), one during use (air)
<b>Sample Pressure</b>	1 - 20 bar absolute (14.5 - 290 psia)

**Orbisphere Controller**

<b>Enclosure Construction</b>	Wall (pipe) mount: stainless steel Panel mount: aluminum
<b>Enclosure Rating</b>	Wall (pipe) mount: IP65, NEMA 4x Panel mount: IP65
<b>Compliance Certifications</b>	EMC: EN61326-1:2006 CE: EN61010-1:2010 ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
<b>Display</b>	Color TFT touchscreen display
<b>Analog Outputs</b>	3 smart 0/4-20 mA (500 ohms), programmable as linear or tri-linear, configurable to send diagnostics information
<b>Relays</b>	3 measurement alarm relays (2A to 30 VAC or 0.5 A to 50 VDC); configurable to send diagnostics information 1 system alarm relay (2 A to 30 VAC or 0.5 A to 50 VDC)
<b>Communication</b>	RS485 Profibus DP (optional) Ethernet USB-client to download data from a computer USB-host to download data with a USB memory stick
<b>Data Storage</b>	Rolling buffer or store once mode for up to 1000 measurements and 1000 operator actions Holds calibration records for last 50 calibrations
<b>User Interface</b>	Touch-screen panel displays: concentration, trend graph, diagnostics, alarm status, historical data
<b>Dimensions (H x W x D)</b>	Wall dimensions: 230.5 mm x 250 mm x 160 mm (9.1 in x 9.8 in x 6.3 in) Panel dimensions: 156 mm x 220 mm x 253.5 mm (6.14 in x 8.86 in x 9.84 in)
<b>Power</b>	Universal 100/240 VAC @ 50/60 Hz, 25 VA 10-36 VDC, 25 W

\*Subject to change without notice.

**Order Information****Pre-configured Systems**

<b>K1100-KTO-W-IMP</b>	Kit containing sensor K1100-S00, controller 410K/W1C0000, 3 m cable (32510.03), ¼" flow chamber (32001.011)
<b>K1100-KTO-W-MET</b>	Kit containing sensor K1100-S00, controller 410K/W1C0000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)
<b>K1100-KTO-P-MET</b>	Kit containing sensor K1100-S00, controller 410K/P1C00000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)
<b>K110H-KTO-W-IMP</b>	Kit containing sensor K1100-S00H, controller 410K/W1C0000, 3 m cable (32510.03), ¼" flow chamber (32001.011)
<b>K110H-KTO-P-IMP</b>	Kit containing sensor K1100-S00H, controller 410K/P1C00000, 3 m cable (32510.03), ¼" flow chamber (32001.011)
<b>K110H-KTO-P-MET</b>	Kit containing sensor K1100-S00H, controller 410K/P1C00000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)
<b>DGK510KK-W1025</b>	Kit containing 1x dual-channel controller 510KK0/W1C00000, 2x sensor K1100-S00, 2x 5 m cable (32510.05), 2x 6 mm flow chamber (32001.010)
<b>DGK510KK-P1025</b>	Kit containing 1x dual-channel controller 510KK0/P1C00000, 2x sensor K1100-S00, 2x 5 m cable (32510.05), 2x 6 mm flow chamber (32001.010)
<b>DGK510KK-W-IMP</b>	Kit containing 1x dual-channel controller 510KK0/W1C00000, 2x sensor K1100-S00, 2x 10 m cable (32510.10), 2x ¼" flow chamber (32001.011)
<b>DGK510KK-P-IMP</b>	Kit containing 1x dual-channel controller 510KK0/P1C00000, 2x sensor K1100-S00, 2x 10 m cable (32510.10), 2x ¼" flow chamber (32001.011)
<b>DGK510KKK-W-IMP</b>	Kit containing 1x multi-channel controller 510KKK/W1C00000, 3x sensor K1100-S00, 3x 10 m cable (32510.10), 3x ¼" flow chamber (32001.011)
<b>DGK510KKK-P-IMP</b>	Kit containing 1x multi-channel controller 510KKK/P1C00000, 3x sensor K1100-S00, 3x 10 m cable (32510.10), 3x ¼" flow chamber (32001.011)

**Controllers and Sensors**

<b>410K/W1C00000</b>	Hach Orbisphere 410 controller (wall mount)
<b>410K/P1C00000</b>	Hach Orbisphere 410 controller (panel mount)
<b>510KK0/P1C00000</b>	Hach Orbisphere 510 dual-channel controller (panel mount)
<b>510KK0/W1C00000</b>	Hach Orbisphere 510 dual-channel controller (wall mount)
<b>510KKK/W1C00000</b>	Hach Orbisphere 510 multi-channel controller (wall mount)
<b>K1100-S00</b>	Luminescent dissolved oxygen sensor for in-line applications, 0 - 2000 ppb, with 28 mm Orbisphere fitting
<b>K1100-S00H</b>	Luminescent dissolved oxygen sensor for in-line applications, 0 - 40 ppm, with 28 mm Orbisphere fitting

**Accessories**

<b>K1100-L</b>	Replacement luminescent spot for low range sensors (0 - 2000 ppb)
<b>K1100-H</b>	Replacement luminescent spot for high range sensors (0 - 40 ppm)
<b>32510.05</b>	Sensor cable to connect M/K-type sensors, 5 m (16.4 ft.)
<b>32001.011</b>	Flow chamber in stainless steel (316) with ¼" fittings. Supplied with EPDM O-rings.
<b>32001.010</b>	Flow chamber in stainless steel (316) with 6 mm fittings. Supplied with EPDM O-rings.

# Orbisphere M1100 Luminescent Dissolved Oxygen Sensor



## Monitors oxygen in the beverage production process

The Orbisphere M1100 optical sensor, together with the Orbisphere 410 one channel and the Orbisphere 510 multichannel controller, offers a new way of monitoring oxygen in the beverage production process (bypass).

### Minimal Drift and Annual Calibration

The M1100 sensor provides immediate oxygen readings with a measurement frequency of two seconds. The instrument carries consistent readings with no drift for 12 months without calibration (when utilising standard weekly CIP processes), surpassing other optical sensors that display significant drift after only a few months in similar conditions.

### Minimal Maintenance Optical Technology

The M1100 pioneered the use of luminescent technology in brewing applications (bypass) and as a result, the sensor doesn't require the replacement of membranes or any electrolytes. Additionally, the sensor's accuracy is unaffected by process changes or pressure shocks, further reducing maintenance. Annual maintenance is limited to just a few minutes for a zero-point calibration. Chemicals are not required for this process, making the task easier and safer without reducing measurement precision.

### Low Level Oxygen Measurement with Accurate ppb

The M1100-L sensor has a lower detection level of 0.6 ppb. This highly accurate instrument's readings are essential to control low oxygen levels in beverage production. As an example, it is critical to control low level oxygen in the post fermentation applications of the brewery to ensure high quality of the final product.

### High Level Oxygen Measurement with Accurate ppm

The M1100-H sensor has a range of 0-40 ppm, and is ideal for use in wort applications, for example. Even in this harsh wort environment, the instrument maintains very good accuracy and minimal drift. Only a yearly maintenance and calibration will be required in most cases.

**Learn More**



**Technical Data\*****M1100 (Low Level Sensor)**

<b>Range</b>	0 - 2000 ppb DO (dissolved oxygen)
<b>Temperature Range</b>	Accurate from -5 - 50 °C (23 - 122 °F) Resistant to temperature from -5 - 100 °C (23 - 212 °F)
<b>Repeatability</b>	± 0.4 ppb or 1 % whichever is greater
<b>Reproducibility</b>	± 0.8 ppb or 2 % whichever is greater
<b>Accuracy</b>	± 0.8 ppb or 2 % whichever is greater
<b>Lower Limit of Detection (LOD)</b>	0.6 ppb
<b>Response Time</b>	(90%) < 10 s (gas phase) (90%) < 30 s (beer process)
<b>Display Resolution</b>	0.1 ppb
<b>Calibration</b>	Single point zero calibration with standard 99.999% nitrogen (quality 50) or equivalent oxygen free gas
<b>Sample Pressure</b>	1 - 20 bar absolute

**M1100 (High Level Sensor)**

<b>Range</b>	0 - 40 ppm DO (dissolved oxygen)
<b>Temperature Range</b>	Accurate from -5 - 50 °C (23 - 122 °F) Resistant to temperature from -5 - 100 °C (23 - 212 °F)
<b>Repeatability</b>	± 0.015 ppm or 2 % whichever is greater
<b>Reproducibility</b>	± 0.02 ppm or 3 % whichever is greater
<b>Accuracy</b>	± 0.02 ppm or 3 % whichever is greater
<b>Lower Limit of Detection (LOD)</b>	0.015 ppm
<b>Response Time</b>	(90%) < 10 s (gas phase) (90%) < 30 s (beer process)
<b>Display Resolution</b>	0.1 ppb
<b>Calibration</b>	Two points at cap replacement (zero and air), one during use (air)
<b>Sample Pressure</b>	1 - 20 bar absolute

**Orbisphere Controller**

<b>Enclosure Construction</b>	Wall (pipe) mount: stainless steel Panel mount: aluminum
<b>Enclosure Rating</b>	Wall (pipe) mount: IP65, NEMA 4X Panel mount: IP65
<b>Compliance Certifications</b>	EMC: EN61326-1:2006 CE: EN61010-1:2010 ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
<b>Display</b>	Color TFT touchscreen display
<b>Analog Outputs</b>	3 smart 0/4-20 mA (500 ohms), programmable as linear or tri-linear, configurable to send diagnostics information
<b>Relays</b>	3 measurement alarm relays (2A to 30 VAC or 0.5 A to 50 VDC); configurable to send diagnostics information 1 system alarm relay (2 A to 30 VAC or 0.5 A to 50 VDC)
<b>Communication</b>	RS485
<b>Data Storage</b>	Rolling buffer or store once mode for up to 1000 measurements and 1000 operator actions Holds calibration records for last 50 calibrations
<b>User Interface</b>	Touch-screen panel displays: concentration, trend graph, diagnostics, alarm status, historical data
<b>Dimensions (H x W x D)</b>	236.5 mm x 250 mm x 160 mm
<b>Power Supply</b>	Universal 100 - 240 VAC @ 50/60 Hz, 25 VA 10 - 36 VDC, 25 W

\*Subject to change without notice.

**Order Information****Pre-Configured Systems**

<b>DGKM110H-W1123</b>	Kit containing M1100-S00H sensor, 410M/W1C10000 controller, 3 m cable (32510.03)
<b>DGKM110H-W11215</b>	Kit containing M1100-S00H sensor, 410M/W1C10000 controller, 15 m cable (32510.15)
<b>DGKM1100-W1123</b>	Kit containing M1100-S00 sensor, 410M/W1C1000 controller, 3 m cable (32510.03)
<b>DGKM1100-W1121</b>	Kit containing M1100-S00 sensor, 410M/W1C1000 controller, 10 m cable (32510.10)
<b>DGK510MM-W1015</b>	Kit containing 2x M1100-S10 sensors, 1x 510MM0/W1C0000 dual-channel controller, 2x 5 m cable (32510.05)
<b>DGK510MM-W1025</b>	Kit containing 2x M1100-S00 sensors, 1x 510MM0/W1C0000 dual-channel controller, 2x 5 m cable (32510.05)
<b>DGK510MM-W2025</b>	Kit containing 2x M1100-S00 sensors, 1x 510MM0/W2C0000 dual-channel controller, 2x 5 m cable (32510.05)

**Controllers and Sensors**

<b>410M/W1C00000</b>	Hach Orbisphere 410 controller (wall mount)
<b>410M/P1C00000</b>	Hach Orbisphere 410 controller (panel mount)
<b>510MM0/W1C0000</b>	Hach Orbisphere 510 dual-channel controller (wall mount)
<b>510MM0/P1C0000</b>	Hach Orbisphere 510 dual-channel controller (panel mount)
<b>510MMM/W1C0000</b>	Hach Orbisphere 510 multichannel controller (wall mount)
<b>M1100-S00</b>	Luminescent dissolved oxygen sensor, 0-2 ppm, with 28 mm Orbisphere fitting
<b>M1100-S10</b>	Luminescent dissolved oxygen sensor, 0-2 ppm, with 12 mm fitting
<b>M1100-S00H</b>	Luminescent dissolved oxygen sensor, 0-40 ppm, with 28 mm Orbisphere fitting
<b>M1100-S10H</b>	Luminescent dissolved oxygen sensor, 0-40 ppm, with 12 mm fitting

**Accessories**

<b>32003</b>	ProAcc sensor insertion device; for use with Tuchenhagen adapter
<b>33095</b>	28 mm Stationary housing, for mounting on Varinline® access unit
<b>33096</b>	PG 13.5 stationary housing or 12 mm sensors; for mounting on Varinline® access units
<b>M1100-L</b>	Replacement luminescent spot for low range sensors (0-2 ppm)
<b>M1100-H</b>	Replacement luminescent spot for high range sensors (0-40 ppm)
<b>32510.05</b>	Sensor cable to connect M/K-type sensors, 5 m (16.4 ft.)
<b>32001.011</b>	Flow chamber in stainless steel (316) with ¼" fittings. Supplied with EPDM O-rings.
<b>32001.010</b>	Flow chamber in stainless steel (316) with 6 mm fittings. Supplied with EPDM O-rings.

These are common kits. There are additional options available.



# CA610 Fluoride Analyzer

## Reliable, Full-time Fluoride Monitoring

The CA610 Fluoride Analyzer uses advanced ion-selective electrode (ISE) technology for continuous monitoring of fluoride concentration in drinking water effluent. Accuracy is ensured with precise control of temperature, ionic strength, and pH. Interferences that can bias measurements are virtually eliminated with this electrode.

## Patented Electrode Design with Replaceable Tip

The proven ISE technology of the electrode is enhanced by a patented\* design and manufacturing process. The lanthanum crystal at the tip of the probe is molded into a one-piece, monolithic tip that is threaded for easy removal. This prevents errors and premature failures. Electrodes are equipped with BNC connectors so that they can be independently checked with laboratory electrochemical meters.

## Cost Effective Operation

The electrode of the CA610 analyzer is made with a molded fluoride crystal tip. The working life of the electrode is approximately one year. The specially designed tip of the electrode should be replaced every six months. Reagent consumption is very low and maintenance is simple.

## Method of Analysis

The ISE system of the CA610 analyzer includes a reference pH electrode and a working electrode. Three reagents are used: Total Ionic Strength Adjustment Buffer (TISAB) solution and two fluoride standards. The TISAB is used for the following purposes. The Ionic strength adjustment lets the electrode respond to concentration instead of activity. The pH control ensures fluoride is present in its ionic state. The Weak complexes formed by certain metals (for example, aluminum) are broken up by TISAB and chelates potential interferents for accurate fluoride measurement.

## Automatic Calibration

Two calibration standards are fully enclosed in the CA610 analyzer's case. The instrument performs a 2-point calibration at 0.5 and 5.0 mg/L fluoride at user-selected time intervals. Automatic calibration intervals can be set for 1 day to 1 month. Readings and calculations of the most recent calibration is stored in the instrument.

### Technical Data\*

Range	0.1 - 10.0 mg/L Fluoride
Accuracy	± 10 % or ±0.10 mg/L whichever is greater
Cycle Time	4.2 min
Sample Temperature	5 - 40 °C (41 - 104 °F)
Inlet Pressure	1 - 10 psig (use sample restriction device to reduce higher pressure samples)
Operating Temperature Range	5 - 40 °C (41 - 104 °F)
Operating Humidity	90% at 40 °C (104 °F)
Mounting	Wall mount
Power Requirements (Voltage)	100 - 115/230 V AC
Power Requirements (Hz)	50/60 Hz
Dimensions (H x W x D)	475 x 341 x 179 mm (18.7 x 13.4 x 7.1 in.)
Weight	11.3 kg (25 lbs)

*\*Subject to change without notice.*

### Order Information

**5740001** CA610 Fluoride Analyzer with Reagents

#### Accessories

The CA610 Fluoride Analyzer comes with one-month supply of reagents, maintenance kit, wall mounting kit, and manual. Power cord has to be ordered separately.

**5448800** Power Cord, 120 VAC

**4643600** Flow meter, 1.2 - 18 L/h, with ¼" OD tubing fittings

#### Replacement Items

**5742100** Maintenance Kit

**5744400** Pump Tubing Set

**5744800** Electrode Kit

**5528100** Electrode, pH reference

**5745100** Electrode Tip, Fluoride Lanthanum Crystal, 2/pk

#### Reagents

One unit of each standard solution is sufficient for two months operation at a 24-hour calibration interval. One unit of Reagent 1 TISAB is sufficient for a 30-day operating period.

**2816900** CA610 Fluoride Reagent Set (includes Reagent 1 TISAB, Standard 1 + 2)

**2812811** CA610 Fluoride Reagent 1 (TISAB), 473 mL

**2743811** CA610 Fluoride Standard 1, 0.5 mg/L, 473 mL

**2797111** CA610 Fluoride Standard 2, 5.0 mg/L, 473 mL

**4450126** Fluoride Half-Cell Electrode Filling Solution, 50 mL

Learn More





# SP510 Hardness Monitor

## Maximize your softener cycle time and minimize your regeneration cost.

The Hach SP510 Hardness Monitor is reliable, accurate, and virtually maintenance free. It can operate unattended for two months and still promptly and immediately signal hardness breakthrough to activate regeneration. Use it to make water softening systems more efficient and less costly.

### Continuous hardness detection

The SP510 monitor detects hardness breakthrough when the capacity of a water softener is exhausted, immediately signaling the need for regeneration. Alarm points are 0.3, 1, 2, 5, 10, 20, 50, and 100 ppm (expressed as mg/L of  $\text{CaCO}_3$ ) and are selected by choosing the appropriate model. Easy to read LED indicators show a simple "HARD" or "SOFT" sample status. You can also use SP510's built-in alarm relay to actuate an external annunciator.

### Low maintenance requirements

The SP510 samples water every two minutes, operating automatically for up to 60 days. It is virtually maintenancefree, requiring only about 15 minutes every two months to replenish and standardise the reagents. Replace tubing in the pump system every six months.

### Convenient, trouble-free operation

The SP510 monitor makes your water softening system more efficient and less costly. It eliminates the guesswork so your softener is regenerated only when needed. Regeneration based on calculation or set times can be replaced with continuous monitoring and automatic control, lowering reagent consumption.

### Rugged, lightweight, and self-contained

The SP510 case is made of ABS plastic which is lightweight, corrosion-resistant, and shatterproof. This sealed case is IP62-rated and has a hinged door for easy access to internal components.



## Order Information

### Instrument

<b>5410003</b>	SP510 Hardness Monitor with 0.3 mg/L trip point
<b>5410001</b>	SP510 Hardness Monitor with 1 mg/L trip point
<b>5410002</b>	SP510 Hardness Monitor with 2 mg/L trip point
<b>5410005</b>	SP510 Hardness Monitor with 5 mg/L trip point
<b>5410010</b>	SP510 Hardness Monitor with 10 mg/L trip point
<b>5410020</b>	SP510 Hardness Monitor with 20 mg/L trip point
<b>5410050</b>	SP510 Hardness Monitor with 50 mg/L trip point
<b>5410099</b>	SP510 Hardness Monitor with 100 mg/L trip point

The Hach SP510 Hardness Monitor includes: installation kit, maintenance kit (stirring bar, strainer, spare tube assemblies, shut-off valve) and two-month supply of reagents.

**NOTE:** When choosing the appropriate model/trip point, the alarm trip point selected should be 40 to 50% higher than the normal effluent hardness. Please contact Hach for assistance in ordering the SP510 Hardness Monitor that is appropriate for your application.

Accessories and Reagents are available on [hach.com](http://hach.com)

### Learn More



## Technical Data\*

<b>Range</b>	Hardness levels: 0.3, 1, 2, 5, 10, 20, 50, 100 ppm (expressed as mg/L $\text{CaCO}_3$ )
<b>Accuracy</b>	±25% of set point value
<b>Measurement Method</b>	Colorimetric
<b>Light Source</b>	LED with peak wavelength of 610 nm
<b>Cycle Time</b>	1.9 minutes (60 Hz) or 2.3 minutes (50 Hz), selectable
<b>Sample Flow Rate</b>	50 - 500 mL/min
<b>Sample Pressure</b>	0.07 - 0.34 bar (0.10 bar is optimum) Sample conditioning: 0.10 - 5.17 bar
<b>Reagent Consumption</b>	500 mL each indicator and buffer every two months
<b>Outputs</b>	1 SPDT relay
<b>Material Enclosures</b>	ABS plastic, large plastic windows to view alarm and reagents level
<b>Enclosure Rating</b>	IP62
<b>Mounting</b>	Wall mount
<b>Power Requirements</b>	115/230 VAC; 50/60 Hz
<b>Certifications</b>	NRTL certified to UL and CSA standards, and CE approved
<b>Dimensions (H x W x D)</b>	419 x 318 x 178 mm (16.5 x 15.5 x 7.0 in.)
<b>Weight</b>	11.3 kg (25 lbs)

\*Subject to change without notice.

# GSx440 Hydrogen Sulfide (H<sub>2</sub>S) Monitoring Sensors



## Water or air, measure H<sub>2</sub>S where it matters—right at the source

Meet your needs with the new hydrogen sulfide sensor from Hach®. Whether in water or air, you will have the direct H<sub>2</sub>S measurement you need to optimize your H<sub>2</sub>S treatment process and proactively control H<sub>2</sub>S before it causes issues.

Data and trends can easily be accessed via wireless or hard-wired connections, so that you will gain actionable insights into H<sub>2</sub>S levels, protect valuable assets from corrosion, and avoid public nuisance from odor.

## Designed for tough applications in water or air

With stationary and portable options, measure H<sub>2</sub>S in water or air with this robust, fouling-resistant sensor – whether at the plant or sewers!

## Actionable H<sub>2</sub>S measurements helps you to stay ahead of your process

Early detection makes it easier than ever before to protect infrastructure, anticipate odor, and minimize buildup.

## Reliable H<sub>2</sub>S data ready for you when you need it, how you need it

Actionable data and trends from this sensor can be accessed by wireless or hard-wired connections. Using the cloud based Hach WebData solution, users will have access to accurate measurements in water or air with ease.

## Continuous H<sub>2</sub>S monitoring made simple

This corrosion-resistant stainless-steel instrument can be inserted in pipes or installed in a flow cell, making ultra-tight spaces easy for continuous H<sub>2</sub>S monitoring. Cleaning is as simple as wiping the sensor head before each calibration, and calibration only takes five minutes.

Learn More



## Technical Data\*

Sensor		
Model	GS1440	GS2440EX
EExp / Hazardous Location	N/A	ATEX and UKCA: II 1G Ex ia IIC T4 Ga IECEX: Ex ia IIC T4 Ga North America: Class I Zone 0 AEx ia IIC T4 Ga Class I Division 1 Groups A-D T4 Ex ia IIC T4 Ga (-20 °C ≤ Ta ≤ +60 °C)
Certifications	CE, UKCA, FCC, ISED, RCM, KC	CE, UKCA, IECEX, FCC, ISED, RCM, cETLus
Parameter	Hydrogen Sulfide (H <sub>2</sub> S)	
Range	Wastewater: 0 - 5 mg/L Air: 0 - 1000 ppm	
Accuracy	± 5% full scale (discrete measurement accuracy, 90-second purge of 1000 ± 20 ppm H <sub>2</sub> S standard following single-point calibration)	
Response Time	< 30 seconds	
Calibration	1000 ppm ± 2% gas standard	
Calibration Interval	1 - 6 months, depending on use	
Material	Stainless Steel (316 L)	
Cleaning	Mechanical cleaning (wipe) of sensor face for in-water installations	
Mounting	Free hanging, in pipe or flow cell	
Storage Conditions	0 - 60 °C (32 - 140 °F), relative humidity 0 - 100%	
Operating Temperature Range	0 - 40 °C (32 - 104 °F)	
Power Options	4-20 mA loop power DC power (12-28 V) Battery powered with field transmitter H <sub>2</sub> S EX	
Dimensions (D x L)	48.3 x 240 mm (1.9 x 9.4 in.)	
Weight	1.36 kg (3.00 lb)	
CAx440EX Field Transmitter		
Power Options	Batteries or DC power (9-28 VDC, min. 1 A), 4-20 mA loop power (24 VDC from a device, e.g. SCADA/PLC)	
Battery Life	3 months (estimated)	
Data Download/ Output	Cloud data 4-20 mA (24 V) for SCADA/PLC	
Parameter	Hydrogen Sulfide (mg/L or ppm), Temperature	
Interface	Status LED; On-off switch	
Material	Polypropylene	
Certifications	CE, UKCA	
EExp / Hazardous Location	ATEX/UKEX II 2(1) G Ex ib [ia IIC Ga] IIC T4 Gb ATEX/UKEX II (1) G [Ex ia Ga] IIC (with external connections)	
Dimensions (H x W x D)	179 x 215 x 107 mm (7.04 x 8.46 x 4.21 in.)	
Weight	0.99 kg (2.18 lb)	
*Subject to change without notice.		

\*Subject to change without notice.

## Order Information

### Sensors

**LXV449.99.10000** GS1440 Sensor H<sub>2</sub>S  
**LXV449.99.20000** GS2440EX Sensor H<sub>2</sub>S EX

### Portable Transmitters and Power Sources

**LXV449.97.01010** CAx440EX Field Transmitter H<sub>2</sub>S EX, Wireless 4G (US & CA)

### Consumables and Spare Parts

**LXZ449.99.00003** Batteries for CA440EX Field Transmitter H<sub>2</sub>S EX, pk/8  
**LXZ449.99.00012** Installation spare parts kit, GS1440/GS2440EX

### Accessories

**LXV449.99.02000** CDx440sc Gateway  
**LXZ449.99.00009** CAx440EX Field Transmitter H<sub>2</sub>S EX External Antenna  
**LXZ449.99.00010** Flush-front sensor cap for submerged sensors  
**LXZ449.99.00011** Air flow cell, GS1440/GS2440EX  
**LXZ449.99.00013** 4-20 mA Barrier with power supply, GS2440EX  
**LXZ449.99.00018** CAx440EX Field Transmitter H<sub>2</sub>S EX DIN rail and wall bracket (US & CA)

### Cellular Data Subscriptions

**LXZ449.99.D0001** CAx440EX Field Transmitter Data License, 1 year  
**LXZ449.99.D0002** CAx440EX Field Transmitter Data License, 2 years

### Sensor Cables

**101335** Cable pull-through tool for cable guard  
**100934-05** RS232 cable, 5 m (16.4 ft)  
**100934-10** RS232 cable, 10 m (32.8 ft)  
**100934-30** RS232 cable, 30 m (98.4 ft)  
**100935-05** Power cable, 5 m (16.4 ft)  
**100935-10** Power cable, 10 m (32.8 ft)  
**100935-30** Power cable, 30 m (98.4 ft)  
**LXZ449.99.02G05** Cable Set, RS232 and Power, 5 m (16.4 ft), gas measurement  
**LXZ449.99.02G10** Cable Set, RS232 and Power, 10 m (32.8 ft), gas measurement  
**LXZ449.99.02G30** Cable Set, RS232 and Power, 30 m (98.4 ft), gas measurement  
**LXZ449.99.02L05** Cable Set, RS232, Power and cable guard, 5 m (16.4 ft), liquid measurement  
**LXZ449.99.02L10** Cable Set, RS232, Power and cable guard, 10 m (32.8 ft), liquid measurement  
**LXZ449.99.02L30** Cable Set, RS232, Power and cable guard, 30 m (98.4 ft), liquid measurement

Part numbers may vary by country.

# Orbisphere 31XXX TC Sensors

## Selective gas measurement for CO<sub>2</sub>, H<sub>2</sub>, or N<sub>2</sub>



The Orbisphere patented Thermal Conductivity sensors have been developed to give continuous Carbon Dioxide (CO<sub>2</sub>), Hydrogen (H<sub>2</sub>), or Nitrogen (N<sub>2</sub>) measurements in gas phase or dissolved in a liquid. The measuring technique is a combination of a gas diffusion membrane and a solid-state gas thermal conductivity detector.

A micro volume enclosed between a semi-permeable membrane and a thermal conductivity detector is periodically flushed with a purge gas. After each purge, the gas to be measured diffuses from the sample through the membrane, changing the thermal conductivity of the gas surrounding the detector. A change in thermal conductivity modifies the detector resistivity. This is measured, together with temperature, to calculate the gas concentration.

### Benefits:

- No sample preparation needed, gas concentration is measured directly in the sample.
- Robust construction to handle harsh plant conditions and high sample pressures.
- High temperature resistance to withstand cleaning in place (CIP).
- Annual maintenance and traceable calibration, quick and easy to carry out for a minimum downtime.

### Technical Data Standard (TC) Sensors\*

	314XX	312XX	312XX	315XX
Parameter	Carbon Dioxide (CO <sub>2</sub> )	Hydrogen (H <sub>2</sub> )	Hydrogen (H <sub>2</sub> )	Nitrogen (N <sub>2</sub> )
Application	In-line beverage	Waste gas, off gas, and reactor coolant	Reactor coolant	In-line beverage, semi-conductors industry
Sample Temperature	0 - 50 °C (32 - 122 °F)	0 - 50 °C (32 - 122 °F)	0 - 50 °C (32 - 122 °F)	0 - 50 °C (32 - 122 °F)
Sample Pressure	0 - 20 bar	0 - 20 bar	0 - 20 bar	0 - 20 bar
Sample Flow Rate	100 mL/min	220 mL/min	200 mL/min	300 mL/min
Linear Flow Rate	50 cm/s	N/A	N/A	150 cm/s
Range at 25 °C	0 - 10 bar, or 0 - 15 g/kg, or 0 - 7 V/V	0 - 2 ppm, or 0 - 25 cc/kg, or 0 - 1.5 bar	0 - 10 ppm, or 0 - 120 cc/kg, or 0 - 6 bar	0 - 20 bar, or 0 - 350 ppm, or 0 - 300 mL/L
Accuracy <sup>1)</sup>	±1% of reading	±1% of reading	±1% of reading	±2% of reading
Cycle Time	22 s	17 s	17 s	22 s
Recommended Purge Gas	Pure N <sub>2</sub> , or air	Pure N <sub>2</sub> , or air	Pure CO <sub>2</sub>	Pure CO <sub>2</sub> , or Argon
Recommended Calibration Gas	Pure CO <sub>2</sub>	Pure H <sub>2</sub>	Pure H <sub>2</sub>	Pure N <sub>2</sub>
Signal Drift (per year)	<1% of reading	<1% of reading	<1% of reading	<2% of reading

### Order Information

Prod. No.	Parameter	Sample Pressure	Purge Gas
<b>31490TC</b>	Carbon Dioxide (CO <sub>2</sub> )	0 - 20 bar	N <sub>2</sub>
<b>31290TC</b>	Hydrogen (H <sub>2</sub> )	0 - 20 bar	N <sub>2</sub>
<b>31292TC</b>	Hydrogen (H <sub>2</sub> )	0 - 20 bar	CO <sub>2</sub>
<b>31290HP</b>	Hydrogen (H <sub>2</sub> )	0 - 170 bar	N <sub>2</sub>
<b>31292HP</b>	Hydrogen (H <sub>2</sub> )	0 - 170 bar	CO <sub>2</sub>
<b>31590TC</b>	Nitrogen (N <sub>2</sub> )	0 - 20 bar	CO <sub>2</sub>
<b>31593TC</b>	Nitrogen (N <sub>2</sub> )	0 - 20 bar	Argon
<b>31593HP</b>	Nitrogen (N <sub>2</sub> )	0 - 170 bar	Argon
<b>31594HP</b>	Nitrogen (N <sub>2</sub> )	0 - 170 bar	He

<sup>1)</sup>Accuracy for sample temperature between 20-50 °C, within ±5 °C of calibration temperature. Values may vary depending on the conditions of measurement and each sensor's limit of detection.

\*Subject to change without notice.

Learn More





# NT3100sc UV Nitrate Sensor

## Proven nitrate measurements made more accessible

Improve your experience in nitrate measurement with Hach's new NT3100sc sensor. Backed by a legacy of reagent-free UV absorbance technology expertise, Hach's NT3100sc UV Nitrate Sensor is equipped to meet your unique application needs.

Whether measuring nitrate in municipal sewage treatment plants, surface water, untreated water or treated drinking water, you'll have the choice of 3 different path lengths to fit your measurement ranges and turbidity compensation needs.



### No time for downtime

Make your best process decisions to ensure water quality when you have reliable and real-time data. The Hach® NT3100sc uses internal smart sensors to proactively alert you of potential measurement issues so you have confidence in your process health. We'll help you reduce time spent on troubleshooting, validations, and avoid unplanned equipment downtime.

### Optimize your process with smart decisions

The NT3100sc UV nitrate sensor features improved accuracy and low-level detection to help you optimize your plant performance and ensure regulatory compliance now and into the future. Hach's proven wiper technology keeps your system clean and our enhanced one-step, tool-free, wiper replacement reduces user maintenance and improves your experience.

### Hach service and support - there when you need us

For nearly a century, Hach has been a leader in water quality analysis. Backed by a legacy of UV absorbance technology expertise, our Technical Support, Field Service, and Central Service Teams work together to help you maximize instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk.

### Order Information

#### Sensors

- LXV448.99.11001** NT3100sc UV Nitrate Sensor, 1 mm path length
- LXV448.99.21001** NT3100sc UV Nitrate Sensor, 2 mm path length
- LXV448.99.51001** NT3100sc UV Nitrate Sensor, 5 mm path length

*A Hach SC controller is required to operate the NT3100sc sensor, controller must be purchased separately.*

#### Accessories and Consumables

- LZY714.99.53120** Stainless Steel Pole Mounting Kit for Sensors, 10 cm
- LZX869** Flow through unit, 1/2 mm
- LZX867** Flow through unit, 5 mm
- LXZ448.99.00002** Wiper blade, 1 mm, pk/5
- LXZ448.99.00003** Wiper blade, 2 mm, pk/5
- LXZ448.99.00033** Wiper blade, 5 mm, pk/5
- LCW943** Nitrate standard, 40 mg/L NO<sub>3</sub> (9.04 mg/L NO<sub>3</sub>-N), 500 mL
- LCW825** Nitrate standard, 50 mg/L NO<sub>3</sub> (11.3 mg/L NO<sub>3</sub>-N), 500 mL
- LCW944** Nitrate standard, 75 mg/L NO<sub>3</sub> (16.9 mg/L NO<sub>3</sub>-N), 500 mL
- LCW945** Nitrate standard, 150 mg/L NO<sub>3</sub> (33.9 mg/L NO<sub>3</sub>-N), 500 mL

*Additional Accessories and Consumables are available. Please visit [hach.com](http://hach.com) or contact Hach for more information.*

Learn More



# N-ISE sc Probe with RFID Technology



**Single ISE probe for the on-line measurement of nitrate provides trending information with minimal maintenance at an affordable price.**

## Order Information

### N-ISE sc Sensors

**LXV440.99.20002** N-ISE sc Low cost ISE Nitrate probe (immersion) with RFID, 10 m cable

**LXV440.99.20012** N-ISE sc Low cost ISE Nitrate probe (immersion) without RFID, 10 m cable

*Please note that a Hach SC controller is required to operate the N-ISE sc sensor, controller is sold separately.*

### Mounting Hardware

**6184900** Rail Mount Kit

**LZX914.99.12400** Chain Mount Kit (PVC) for ISE sensors

### Cartridge

**LZY694** Cartrical Sensor Cartridge for AN-ISE sc/A-ISE sc/N-ISE sc Sensors

### Air Cleaning Systems (Optional)

**LZY706** Cleaning Unit for AN-ISE sc/A-ISE sc/N-ISE sc Sensors

**6860000** High Output Air Blast Cleaning System, 115 VAC

**6860100** High Output Air Blast Cleaning System, 230 Vac

*Part numbers may vary by country.*

## Cost-Effective Trending Information

The N-ISE sc Sensor utilizes ion selective electrode (ISE) technology to provide your plant with high level trending information while saving money by eliminating the need for reagents and sample preparation.

## Minimal Maintenance with Simple Cartridge Replacement

The sensor works with a Cartrical cartridge that comes factory calibrated, so little maintenance is necessary. Cartridge replacement is simple: unscrew the old cartridge, plug in the new one, and the sensor is ready for measurement. Using RFID\* technology, the factory calibration is automatically identified after replacing the cartridge.

## Simple, Accurate Calibration




Easy to perform, fail-safe calibration corrections compensate for naturally occurring calibration drift in ISE instruments. An advanced menu structure allows you to perform corrections without manual entry of values via Ethernet, SD card or Bluetooth.

\*RFID version available only in US, EU, Canada, Australia, New Zealand, Croatia, Cyprus and Turkey.

**Learn More**



# Nitrate Sensor Quick Reference Guide

					
Product Type	NT3100sc Sensor			N-ISE sc Sensor	AN-ISE sc Combination Sensor
Parameter	Nitrate			Nitrate	Ammonia, Nitrate
Measurement Method	UV Absorption, sludge compensated, 2-channel beam path			Potentiometric ion-selective electrodes for nitrate and chloride, reference system and temperature sensor	Potentiometric ion-selective electrodes for ammonium, nitrate and temperature sensor
RFID	--			Yes	Yes
Application	Wastewater Drinking Water			Wastewater	Wastewater
Path Length	1 mm	2 mm	5 mm	--	--
Range	0.1 - 90 mg/L NO <sub>3</sub> -N	0.05 - 50 mg/L NO <sub>3</sub> -N	0.02 - 25 mg/L NO <sub>3</sub> -N	0 - 1000 mg/L NO <sub>3</sub> -N	0 - 1000 mg/L NH <sub>4</sub> -N 0 - 1000 mg/L NO <sub>3</sub> -N 0 - 1000 mg/L K <sup>+</sup> 0 - 1000 mg/L Cl <sup>-</sup>
Lower Limit of Detection (LOD)	0.1 mg/L NO <sub>3</sub> -N	0.05 mg/L NO <sub>3</sub> -N	0.02 mg/L NO <sub>3</sub> -N	0.2 mg/L NO <sub>3</sub> -N	0.2 mg/L NH <sub>4</sub> -N and NO <sub>3</sub> -N
Accuracy	± 5% of reading ± 0.1 mg/L NO <sub>3</sub> -N	± 4% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 0.05 - 22 mg/L,  ± 5% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 22 - 50 mg/L	± 3% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 0.02 - 13 mg/L,  ± 5% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 13 - 25 mg/L	5% of measured value +0.2 mg/L (with standard solutions) NO <sub>3</sub> -N	5% of measured value +0.2 mg/L (with standard solutions) NH <sub>4</sub> -N and NO <sub>3</sub> -N
Sample Pressure	0.5 bar			0.3 bar	
Sample Temperature	2 - 40 °C (36 - 100 °F)			2 - 40 °C (35.6 - 104 °F)	
Cable Length	10 m (33 ft)  Extension cables are available: 5, 10, 15, 20, 30 and 50 m. The maximum cable length is 60 m (190 ft).			Standard: 10 m (33.8 ft)  Extension cables are available as an option in the following lengths:  5, 10, 15, 20, 30, 50 m (16.4, 33.8, 49.2, 65.6, 98.4, 164 ft)	Standard: 10 m (33.8 ft)  Extension cables are available as an option in the following lengths:  5, 10, 15, 20, 30, 50 m (16.4, 33.8, 49.2, 65.6, 98.4, 164 ft)
Dimensions (D x L)	70 x 402 mm (3 x 15.8 inches) approximately			84.5 mm x 320 mm (3.3 x 12.6 inches)	
Weight	4.8 kg (10.58 lb) with 10 m cable			2.38 kg (5.25 lb)	
Controller Compatibility	SC4500, SC1000, SC200				

Please note that a Hach SC controller is required for operation, controller must be purchased separately.

\*Subject to change without notice.



# FP360sc Oil-in-Water Continuous Online Monitoring Sensor

## Continuous oil-in-water monitoring for the right price.

The FP 360 sc is the only online oil-in-water instrument that delivers the highest sensitivity and selectivity with the lowest total cost of ownership.

### The Right Technology for the Right Price

Due to its unique combination of submersible probe design and UV fluorescence sensing technology, the FP360sc delivers the best technology to detect oil in water and is priced below competitive UV fluorescent instruments.

### Minimal Maintenance

The FP360sc has no tubes, pumps, or valves that can foul or require constant maintenance interventions. Maintenance is limited to occasional wiping of the sensor's measurement window, calibration once every two years, and Xenon lamp replacement every four years.

### Reduced Laboratory Testing

While laboratory testing is the ultimate method of measuring oil in water, it is a long and complex process that requires

special equipment and trained lab personnel. The FP360sc provides a cost-effective, continuous online monitoring solution to maintain process control and avoid oil contamination with minimal laboratory testing.

### High Sensitivity and Selectivity

The FP360sc can detect and measure polycyclic aromatic hydrocarbons (PAHs) from 1.2 ppb to up to 5000 ppb (µg/L). This is approximately equivalent to a concentration of mineral oil between 0.1 to 150 ppm (mg/L). Furthermore, the FP360sc method of detection makes it impervious to interferences by turbid water or natural organic and biological matter that impact online light scattering, UV absorbance, and VIS fluorescence instruments.

Learn More



### Technical Data\*

Measurement Method	UV fluorescence method for polycyclic aromatic hydrocarbons (PAH)
Light Source	Miniature xenon flashlamp with interference filter
Detector	UV photodiode with interference filter; Compensation of daylight and flashlamp intensity fluctuations
Excitation	Wavelength 254 nm
Wavelength	Measurement: 360 nm
Range	<i>Low Range:</i> 0 - 50 ppb (µg/L) and 0 - 500 ppb (µg/L) PAH** 0.1 - 1.5 ppm (mg/L) and 0.1 - 15 ppm (mg/L) oil** <i>High Range:</i> 0 - 500 ppb (µg/L) and 0 - 5,000 ppb (µg/L) PAH** 0.1 - 15 ppm (mg/L) and 0.1 - 150 ppm (mg/L) oil**
Resolution	0.1 ppb (µg/L) PAH in the lowest measuring range
Reproducibility	2.5% of measured value at constant temperature (PAH)
Response Time T90	10 s
Calibration	Factory calibrated with UV fluorescence standard or process calibration with results of a grab sample analysis.
pH Value(s)	≥ 4
Sample Temperature	1 - 40 °C (33.8 - 104 °F)
Pressure Range	Max. 30 bar (measurement probe)
Material	Housing: stainless steel 316Ti (1.4571) or titanium
Dimensions	68 x 306 mm (D x L; without connector and suspension pin)
Weight	Stainless steel: 2.8 kg (6.17 lb) Titanium: 1.8 kg (3.97 lb)

\*Subject to change without notice.

\*\*With calibration standard.

### Order Information

#### Sensors

LXV441.99.11102	FP360sc Oil-in-Water Sensor, 500 ppb, Stainless Steel Body, 10 m (32.8 ft) Cable, without Cleaning Unit
LXV441.99.11202	FP360sc Oil-in-Water Sensor, 500 ppb, Stainless Steel Body, 10 m (32.8 ft) Cable, with Cleaning Unit
LXV441.99.11302	FP360sc Oil-in-Water Sensor, 500 ppb, Stainless Steel Body, 1.5 m (5 ft) cable, without Cleaning Unit
LXV441.99.12102	FP360sc Oil-in-Water Sensor, 500 ppb, Titanium Body, 10 m (32.8 ft) Cable, without Cleaning Unit
LXV441.99.12202	FP360sc Oil-in-Water Sensor, 500 ppb, Titanium Body, 10 m (32.8 ft) Cable, with Cleaning Unit
LXV441.99.12302	FP360sc Oil-in-Water Sensor, 500 ppb, Titanium Body, 1.5 m (5 ft) Cable, without Cleaning Unit
LXV441.99.21102	FP360sc Oil-in-Water Sensor, 5,000 ppb, Stainless Steel Body, 10 m (32.8 ft) Cable, without Cleaning Unit
LXV441.99.21202	FP360sc Oil-in-Water Sensor, 5,000 ppb, Stainless Steel Body, 10 m (32.8 ft) Cable, with Cleaning Unit
LXV441.99.21302	FP360sc Oil-in-Water Sensor, 5,000 ppb, Stainless Steel Body, 1.5 m (5 ft) Cable, without Cleaning Unit
LXV441.99.22102	FP360sc Oil-in-Water Sensor, 5,000 ppb, Titanium Body, 10 m (32.8 ft) Cable, without Cleaning Unit
LXV441.99.22202	FP360sc Oil-in-Water Sensor, 5,000 ppb, Titanium Body, 10 m (32.8 ft) Cable, with Cleaning Unit
LXV441.99.22302	FP360sc Oil-in-Water Sensor, 5,000 ppb, Titanium Body, 1.5 m (5 ft) Cable, without Cleaning Unit

A digital Hach SC controller is required to operate the FP360sc sensor, controller is sold separately.

#### Accessories

LZX914.99.11110	Stainless steel chain mounting set for FP360sc
LZY669	Flow cell with mounting panel for FP360sc
LZY623	Extension cable FP360sc, 1.5 m (5 ft)
LZY624	Extension cable FP360sc, 10 m (32.8 ft)

Part numbers may vary by country.



# UVAS plus sc Sensor

## Continuously monitor plant treatment processes of organic loads.

### Continuous, Automatic Early Warning Systems

Use the Hach UVAS plus sc UV Absorbance/Transmittance Sensor to continuously protect plant treatment processes from high influent organic loads. Operators can use the continuous readings of UV absorbance or transmission to watch for sudden changes in organic load that would require alternate treatment procedures.

### Control Activated Sludge Processes

Activated sludge processes require precise balancing of organic load, aeration, and nutrients. Continuous trending of the organics in the system with the UVAS plus sc sensor can help operators know how to balance other factors resulting in cost and time savings.

### Self-cleaning Wiper System

With the UVAS plus sc sensor submerged in the sample stream, the detector windows are automatically cleaned by a built-in wiper that eliminates surface films or particles that can diminish accuracy.



Learn More



### Monitor Efficiency of UV Disinfection Process

UV light transmittance (UVT) is critical in the delivery of dose in a UV reactor. The delivered dose is determined by, among other things, the UVT of the source water, the intensity of the UV lamps, and the flow rate of the water source. UVT can be affected by many factors, from a simple change in the seasons to storm events. Potential changes in UVT should be considered in a UV disinfection system for optimized dose delivery. Hach's UVAS plus sc is designed to provide continuous UVT measurement of pre-disinfected source water. Operational costs related to sampling for UVT may be reduced with continuous online measurement. Data can immediately be incorporated into the operation in real time.

### Self Diagnostics and Easy Maintenance

Diagnostic routines built into the UVAS plus sc sensor reduce the need for extensive calibration and maintenance. Only semi-yearly inspection and replacement of the wiper and seals is needed.

### Order Information

The following sensors include the Hach SC4500 Multi-parameter Controller.

LXV525.97KT0027	1 mm UVAS plus sc sensor with SC4500 Controller
LXV525.97KT0030	2 mm UVAS plus sc sensor with SC4500 Controller
LXV525.97KT0021	5 mm UVAS plus sc sensor with SC4500 Controller
LXV525.97KT0017	50 mm UVAS plus sc sensor with SC4500 Controller

#### UVAS plus sc Sensor

LXV418.99.10002	1 mm UVAS plus sc Sensor
LXV418.99.20002	2 mm UVAS plus sc Sensor
LXV418.99.50002	5 mm UVAS plus sc Sensor
LXV418.99.90002	50 mm UVAS plus sc Sensor

A Hach SC controller is required to operate the UVAS plus sc sensor, controller must be purchased separately.

#### Bypass Panel

LZX869	Flow through unit, 1/2 mm
LZX867	Flow through unit, 5 mm
LZX868	Bypass Panel for 50 mm sensor
LZX450	Sedimeter for Sensor

#### Mounting Hardware

LZY714.99.53120	Stainless Steel Pole Mounting Kit for Sensors, 10 cm
LZY714.99.52120	Stainless Steel Pole Mounting Kit for Sensors, 24 cm

#### Accessories

LZX148	Spare wiper blades for 1 mm sc sensor, pk/5
LZX012	Spare wiper blades for 2 mm sc sensor, pk/5
LZX117	Spare wiper blades for 5 mm Nitratex, pk/5
LZX119	Spare wiper blades for 50 mm UVAS sc, pk/5

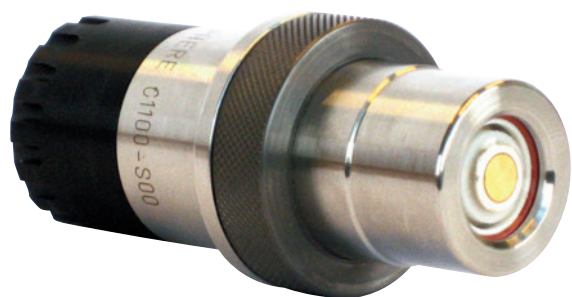
Part numbers may vary by country.

### Technical Data\*

	Principal of Operation	
Measurement Method	UV absorption measurement (unique 2-beam technique) SAC254 in accordance with DIN 38404 C3	
Path Length	1, 2, 5 and 50 mm	2, 5 and 50 mm
Range	Choice of: 0.01 - 60 m <sup>1</sup> at 50 mm 0.1 - 600 m <sup>1</sup> at 5 mm 0 - 1500 m <sup>1</sup> at 2 mm 2 - 3000 m <sup>1</sup> at 1 mm	Choice of: 0.01 - 60 m <sup>1</sup> at 50 mm 0.1 - 600 m <sup>1</sup> at 5 mm 0 - 1500 m <sup>1</sup> at 2 mm
Reference Wavelength	550 nm	
Measuring Interval	≥ 1 min	
Operating Temperature Range	2 - 40 °C (35.6 - 104 °F)	
pH Range	4.5 - 9 pH	
Pressure Range	≤ 0.5 bar	
Sample Flow Rate	N/A	Bypass: 0.5 L/h minimum
Connections	N/A	Bypass: 4 mm ID / 6 mm OD hose
Cable Length	10 m fixed cable at sensor	
Control	Control Function: PID, time control, 2-point controller (with SC controller)	
Service Interval	6 months	
User Maintenance	1 h/month, typical	
Controller Compatibility	SC4500, SC1000, SC200	
Dimensions	70 x 333 mm (2.75 x 13.11 in.) approx.	
Weight	3.6 kg (7.94 lb) approx.	

\*Subject to change without notice.

# Orbisphere C1100 Ozone Sensor



## Time and Cost Saving Ozone Sensor

### Eliminate Product Loss

Withstanding pressure up to 40 bar, the Hach Orbisphere C1100 is the only ozone sensor in the industry that can be placed directly in the process pipe. This eliminates the need to send product to drain and amounts to a typical savings of 380 gallons per day.

### Maintenance in Less Than Five Minutes

Traditional cleaning processes can take more than thirty minutes to complete, but with the C1100 patented cartridge system, both the set-up and the initial sensor replacement procedure can be performed in less than five minutes without the need for a trained technician.

### True Zero Reading: Drift-free and Accurate Measurements

The unique platinum guard ring technology prevents false signals arising from the electrolyte. Operators can be confident of measurements and alarm settings knowing the sensor does not require a separate "zero" calibration.

### Fast, Easy, and Reliable Calibration

The C1100 ozone sensor has a unique air calibration feature that offers operators a quick and easy method to calibrate without requiring an external standard. Air calibration provides an accuracy of  $\pm 5\%$  (achieving better than  $\pm 1\%$  against an ozone standard of known concentration). The Orbisphere C1100 is the only sensor that provides such certified high accuracy!

### Extended Life Expectancy

The robust stainless steel design makes the C1100 sensor ideal for the most demanding applications, extending the life expectancy of the sensor from 5 to 10 years.



## Technical Data\*

Range	0 ppb - 50 ppm O <sub>3</sub>
Accuracy	$\pm 0.4$ ppb or $\pm 5\%$ , whichever is the greater
Pressure Range	Stainless steel: up to 40 bar Titanium: up to 100 bar
Lower Limit of Detection (LOD)	0.6 ppb
Response Time	30 s
Temperature Range	Working operating range: -5 - 45 °C (23 - 113 °F) Maximum operating range: -5 - 100 °C (23 - 212 °F)
Membrane	2956A-C
Flow Rate	350 mL/min (typical)

*\*Subject to change without notice.*

## Order Information

<b>C1100-T00</b>	Electrochemical ozone sensor, titanium version, maximum pressure 100 bar, with Smart capability
<b>C1100-S00</b>	Electrochemical ozone sensor, stainless steel version, maximum pressure 40 bar, with Smart capability
<b>2956A-CT</b>	Recharge kit of 4 pre-filled cartridges with pre-mounted 2956A membranes for C1100 ozone sensors with 33051-xT cap only.

Learn More



# Differential pH and ORP Sensors

## The smart choice for accurate and reliable online process pH/ORP measurement

Hach Digital pH/sc sensors are available in convertible (PEEK or PPS), insertion, and sanitary body styles. Three electrodes are used in these sensors to increase measurement accuracy and eliminate sensor ground loops.



### Exceptional Process Sensor Performance with the Differential Electrode pHD Measurement Technique

This field-proven technique uses three electrodes instead of the two normally used in conventional pH/ORP sensors. Process and reference electrodes measure the pH/ORP differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These process pH/ORP sensors provide greater reliability, resulting in less downtime and maintenance.

### Lower Maintenance Needs with the Double Junction Salt Bridge

The double junction salt bridge creates a barrier to contamination which minimizes the dilution of the internal standard cell solution. The result is lower maintenance needs and a longer time period between calibrations.

### Extended Working Life with the Replaceable Salt Bridge/Protector

The unique, replaceable salt bridge holds an extraordinary volume of buffer to extend the working life of the sensor by protecting the reference electrode from harsh process conditions. The salt bridge simply threads onto the end of the sensor if replacement is needed.

### Reliability with Built-in Encapsulated Preamp

Encapsulated construction protects the sensor's built-in preamp from moisture and humidity, ensuring reliable sensor operation. The preamp in the pHD analog sensor produces a strong signal, enabling the sensor to be located up to 1000 m (3280 ft.) from the analyzer.

### Innovative Technology

The former GLI, now a Hach Company brand, invented the Differential Electrode Technique for pH measurement in 1970. The pHD sensor series takes this field-proven technology to a new level.

### Versatile Mounting Styles

Sensors are available in four mounting styles - convertible, insertion, immersion, and sanitary

### Differential Sensor Warranty

Hach Company offers the best sensor warranty in the industry on its Differential Sensors. We will replace any Differential Sensor that fails due to defects in materials or workmanship within one year from the date of shipment-and up to 30 months on a prorated basis for any failure.

**Learn More**



## Technical Data\*

<b>Compliance</b>	For hazardous and maritime applications, CE	For non-hazardous and non-maritime applications only
<b>Operating Temperature Range</b>	-5 - 70 °C (23 - 158 °F) pHD and ORP 0 - 50 °C (32 - 122 °F) SS pHD	-5 - 70 °C (23 - 158 °F) pHD and ORP 0 - 50 °C (32 - 122 °F) SS pHD
	Before initial pH calibration, calibrate the temperature measurement when the sensor is in water or buffer which is at approximately the same temperature as the pH buffers (matches current recommendation)	Before initial pH calibration, calibrate the temperature measurement when the sensor is in water or buffer which is at approximately the same temperature as the pH buffers (matches current recommendation)  Please Note: When the sensor is placed into the application sample, if that sample is more than 10 °C (18 °F) different than the previous temperature/pH calibration, then it is recommended to recalibrate the temperature while the sensor is in the sample to maintain the $\pm 0.5$ °C ( $\pm 0.9$ °F) temperature accuracy specification.
<b>Range</b>	-2.0 to 14.0 pH -1500 to +1500 mV ORP	
<b>Sensitivity</b>	$\pm 0.01$ pH $\pm 0.5$ mV	
<b>Flow Rate</b>	3 m (10 ft.) per second, maximum	
<b>Pressure Range</b>	Digital: 6.9 bar at 70 °C (100 psi at 158 °F)	
<b>Temperature Sensor</b>	NTC 300 $\Omega$ thermistor for automatic temperature compensation and analyzer temperature readout	
<b>Transmission Distance</b>	100 m (328 ft.), maximum	
<b>Temperature Accuracy</b>	$\pm 0.5$ °C ( $\pm 0.9$ °F)	
<b>Sensor Cable</b>	4 conductor cable with one shield and polyurethane jacket; rated to 105 °C (221 °F); 10 m (33 ft.) standard length	
<b>Wetted Materials</b>	PEEK or PPS, salt bridge of matching material with PVDF junction, glass process electrode, titanium ground electrode, and FKM/FPM O-ring seals (pH sensor with optional HF-resistant glass process electrode has 316 stainless steel ground electrode, and perfluoroelastomer wetted O-rings; consult factory for other available wetted O-ring materials)	

\*Subject to change without notice.

Some industrial applications require accurate measurement and control below 2 or above 12 pH. In these special cases, please contact Hach Technical Support for further details.

For best ORP measuring results in solutions containing zinc, cyanide, cadmium or nickel, Hach recommends using the pHD sc ORP sensor equipped with an optional gold electrode.

## Order Information

### pHD sc Digital Differential pH Sensors

<b>DPD1P1</b>	Digital pH Sensor, PEEK, Convertible, General Purpose
<b>DPD1R1</b>	Digital pH Sensor, PPS, Convertible, General Purpose
<b>DPD2P1</b>	Digital pH Sensor, PEEK, Insertion, General Purpose

### pHD Analog pH Sensors

<b>PD1P1</b>	Analog pH Sensor, PEEK, Convertible, General Purpose
<b>PD1R1</b>	Analog pH Sensor, PPS, Convertible, General Purpose
<b>PD2P1</b>	Analog pH Sensor, PEEK, Insertion, General Purpose

### pHD sc Digital Differential ORP Sensors

<b>DRD1P5</b>	Digital ORP Sensor, PEEK, Convertible, Platinum
<b>DRD1R5</b>	Digital ORP Sensor, PPS, Convertible, Platinum

### pHD Analog ORP Sensors

<b>RD1R5</b>	Analog ORP Sensor, PPS, Convertible, Platinum
<b>RD1P5</b>	Analog ORP Sensor, PEEK, Convertible, Platinum
<b>RD2P5</b>	Analog ORP Sensor, PEEK, Insertion, Platinum
<b>RD1P5A50</b>	Analog ORP Sensor, PEEK, Convertible, Platinum
<b>RD1P6</b>	Analog ORP Sensor, PEEK, Convertible, Gold

### Accessories

<b>SB-P1SV</b>	PEEK sensor and salt bridge body, PVDF outer junction
<b>SB-R1SV</b>	PPS sensor and salt bridge body, PVDF outer junction
<b>25M2A1001-115</b>	200 mV reference sol. 500 mL (1 pt)

Additional sensors and accessories are available, please visit [hach.com](http://hach.com) or contact Hach. Part numbers may vary by country.



# Encapsulated Differential pH and ORP Sensors

## Differential Electrode Measurement Technique

This field-proven technique uses three electrodes instead of the two normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

## Complete Encapsulation

Complete encapsulated construction protects the sensor's built-in electronics from moisture and humidity problems, extending the working life of the sensor.

## Encapsulated (LCP) Sensor

- Low drift sensor configuration for reliable readings
- Stable reference method for superior stability of the reference electrode

## Longer Calibration Stability

- Larger surface area electrode
- Larger volume buffer capacity

## Improved Measurement Accuracy

With the reduction in common interferences. Ground loop, electrical noise in readings.

## Low Maintenance and Long Sensor Life

Rebuildable sensor and variety of electrodes/materials available for multiple applications.

Learn More



## Technical Data\*

Cleaning Systems for Encapsulated Differential Sensors		
Wetted Materials	<b>LCP Sensor:</b> LCP (liquid crystal polymer) body and salt bridge with PVDF (or ceramic) junction, glass process electrode, titanium ground electrode, and FKM/FPM O-ring process seals. Union-mount style sensor also has LCP adapter. pH sensor with optional antimony process electrode has stainless steel ground electrode.	<b>LCP Sensor:</b> LCP (liquid crystal polymer) body and salt bridge with PVDF (or ceramic) junction, glass and platinum (or glass and gold) process electrode, titanium ground electrode, and RTV sealant. Union-mount style sensor also has LCP adapter and FKM/FPM O-ring process seals.
	<b>PPS Sensor:</b> PPS body and salt bridge with PVDF (or ceramic) junction, glass process electrode, titanium ground electrode, and FKM/FPM O-ring process seals. Union-mount style sensor also has PPS adapter. pH sensor with optional antimony process electrode has stainless steel ground electrode.	<b>PPS Sensor:</b> PPS body and salt bridge with PVDF (or ceramic) junction, glass and platinum (or glass and gold) process electrode, titanium ground electrode, and RTV sealant. Union-mount style sensor also has PPS adapter and FKM/FPM O-ring process seals.
Range	LCP and PPS Sensors 0 - 14 pH (See Note 1.)	-2000 - +2000 mV (See Note 2.)
Sensitivity	Less than 0.005 pH	Less than 0.5 mV
Drift	0.03 pH per 24 hours, non-cumulative	2 mV per 24 hours, non-cumulative
Output Span	Only with 2-wire transmitter: 0.95 mA per pH unit	Only with 2-wire transmitter: 16 mA per 1000 mV
Outputs	Offset (only with 2-wire transmitter): 12 mA occurs at 7.0 pH, $\pm 0.88$ pH (See Note 3.)	Offset (only with 2-wire transmitter): -500 to 500 mV range: 12 mA occurs at 0 mV, $\pm 40$ mV 0 to 1000 mV range: 12 mA occurs at 500 mV, $\pm 40$ mV
Pressure Range	<b>Temperature Limit:</b> Sensor Only (no hardware): LCP Sensor -5 to 95 °C (23 to 203 °F) PPS Sensor -5 to 95 °C (23 to 203 °F) <i>NOTE: An LCP or PPS sensor that is mounted in a plastic flow-through tee has a higher pressure rating at maximum temperature than when it is mounted in a union tee. The temperature rating is increased to 95 °C (203 °F) at 100 psig when the sensor is mounted in a stainless steel flow-through or union tee, or a stainless steel cross.</i>	
Flow Rate	3 m/s (10 ft./s) maximum	
Load	At 20 mA (only with 2-wire transmitter): 450 ohms	
Transmission Distance	Sensor with Preamplifier: 914 m (3000 ft.) Sensor with 2-wire Transmitter: Limited only by wire resistance and power supply voltage	
Sensor Cable	Sensor with Preamplifier: 5 conductor (plus shield); 3 m (10 ft.) long Sensor with 2-wire Transmitter: 2 conductor (twisted pair); 3 m (10 ft.) long	

\*Subject to change without notice.

1. Most pH applications fall in the 2.5 to 12.5 pH range. General purpose pH glass electrodes perform well in this range. For pH applications below 4 or above 10 pH, GLI recommends using an LCP-bodied pH sensor. Some industrial applications require accurate measurement and control below 2 or above 12 pH. In these cases, please contact Hach for further details. Repeatability and speed of response of a pH sensor with an optional antimony process electrode is not as good as a sensor with a glass process electrode. Antimony electrodes are only linear between 3 and 8 pH, and should only be ordered when process conditions, such as the presence of hydrofluoric acid, dictate their use.

2. For ORP applications where zinc, cyanide, cadmium, or nickel are present, specify the optional gold electrode instead of the standard platinum electrode.

3. A pH sensor with a built-in two-wire transmitter provides a non-isolated and uncalibrated 4-20 mA output. The indicating instrument of the measuring system must be able to provide 24 VDC to power this sensor, and have adjustment means to calibrate for zero offset and span.

# Encapsulated Differential pH and ORP Sensors Configurator

Product Number	X	X	X	X
<b>Type of Measurement</b>				
ORP, 5-wire (with built-in preamplifier)	20			
ORP, 2-wire (with built-in two-wire transmitter providing 4-20 mA output)	24			
pH, 5-wire (with built-in preamplifier)	60			
pH, 2-wire (with built-in two-wire transmitter providing 4-20 mA output)	64			
<b>Mounting Style</b> (each style has integral 3 m/10 ft. long cable)				
Convertible (immersion or flow-through mount, see note A below)		2		
Union-mount (includes adapter, but requires special 2-inch threaded tee)		5		
<b>Body Material</b>				
PPS (for elevated temperatures in high pH applications)			2	
LCP (liquid crystal polymer)			8	
<b>Electrode Material</b>				
Glass (only for pH - general purpose)				P0
Antimony (only for pH - only for LCP and PPS sensors)				P1
Platinum (only for ORP - see note B below)				R0
Gold (only for ORP - see note B below)				R1

A. When immersion mounting a convertible style sensor, it is recommended to order a protector of the same material as the sensor body (LCP protector P/N 60A2F1278 or PPS protector P/N 60A2F1278-300). The protector threads onto the end of the sensor.

B. Specify the gold electrode material for processes containing zinc, cyanide, cadmium, or nickel which poison a platinum electrode.



# 12 mm Combination pH/ORP Sensors

Common menu guides reduce variability and provide step-by-step procedures for maintenance and pH/ ORP calibration. This standard ¾" and 12 mm pH/ORP sensor delivers fast and accurate measurement.

## Order Information

Prod. No.	Description
08350=C=0004	pH Combination Sensor for High Temperatures, 0 - 14 pH
08350=C=0005	pH Combination Sensor for Fouling Environments, 0 - 12 pH
08351=C=0000	ORP Combination Sensor for High Temperatures, ±1500 mV
08362=A=2000	pH Combination Sensor for Ultrapure Water, 0 - 14 pH
368417,00000	pH Combination Sensor for High Temperatures, 2 - 12 pH, Ag/AgCl Reference

For more details and additional options please visit [hach.com](http://hach.com) or contact Hach.

Learn More



## Combination pH/ORP Sensors

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant PPS or PVDF, and the reference junction is coaxial porous PTFE. All sensors are rated 0 to 105 °C up to 100 psig, and have integral 4.5 m (15 ft.) cables with tinned leads. The PC-series (for pH) and RCseries (for ORP) combination sensors are ideal for measuring mild and aggressive media.

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

The PC-series combination pH sensors come with or without a Pt 1000 Ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

The Sensors are available in three mounting styles—convertible, insertion, and sanitary.

## Order Information

Prod. No.	Description
PC1R1A	Combination pH Sensor, ¾" convertible, PPS Body
PC1R2A	Combination pH Sensor with PT1000, ¾" convertible, PPS Body
PC1R3A	Combination pH/ORP Sensor, ¾" convertible, PPS Body, HF-resistant Glass Electrode, Temperature Compensation
RC1R5N	Combination ORP sensor with PT1000, ¾" convertible, PPS Body
DPC1R1A	Digital Combination pH Sensor, ¾" convertible, PPS Body, General Purpose Glass pH Electrode

Additional sensors are available, please visit [hach.com](http://hach.com) or contact Hach.

Part numbers may vary by country.

Learn More



# 8362sc High Purity Water pH or ORP Panel



The Hach 8362sc High Purity Water pH/ORP Panel is designed for use in electric power generation, industrial boiler, pharmaceutical, microelectronics, and other applications that require excellent accuracy when measuring pH or ORP in high purity water.

## Save time on design

A single design source and one product platform means you spend less time searching for design files or configuring components. Create and reuse your optimal design templates. The compact design saves valuable space.

## Accelerate your installation

One source, interchangeable components, a common user interface, and one support team make installation faster and less complicated. Quickly and easily transfer user settings between pH/ORP loops. The self-pressurizing electrode is ready to operate and requires no maintenance or refilling of electrolyte reservoirs between normal electrode replacements.

## Reduce training complexity

A single platform minimizes time required to teach and learn product operations, getting new systems in use faster.

## Simplify maintenance

Common menu guides reduce variability and provide step-by-step procedures for maintenance and calibration. Standard visual alerts across parameters notify operators when troubleshooting is required.

## Optimize operation

Self-pressurizing electrodes and platinum RTD temperature sensor ensures accurate measurement. Hach's unique conductive flow chamber and stainless steel sheath reduces drift common to less sophisticated probes.

## Accurate temperature measurement

Accuracy of temperature is critical for high purity water algorithms for measuring pH or ORP. Temperature is measured with a 100 ohm Platinum RTD that is accurate to 0.1°C. A stainless steel sheath provides grounding of the sample at the electrode to reduce the effects of streaming currents.

Learn More



## Order Information

- 6178000** 8362sc High Purity Water pH Panel  
*Includes pH sensor, digital electronics junction box, flow meter, and 7.7 m (25 ft.) digital interconnect cable.*
- 6178001** 8362sc High Purity Water ORP Panel  
*Includes ORP sensor, digital electronics junction box, flow meter, and 7.7 m (25 ft.) digital interconnect cable.*
- 08362=A=0000** 8362sc pH sensor
- 08362=A=1111** 8362sc ORP sensor

Part numbers may vary by country.

## Technical Data\*

Parameter	pH	ORP
Range	2 - 12 pH at 0 - 80 °C (32 - 176 °F)	-1500 - 1500 mV at 0 - 80 °C (32 - 176 °F)
Accuracy	±0.05 pH at 25 °C (77 °F) above 1 µS/cm (constant flow) ±0.1 pH at 25 °C (77 °F) below 1 µS/cm (constant flow)	± 3 mV at 25 °C (77 °F) (constant flow)
Repeatability	0.01 pH at 25 °C (77 °F) (constant flow)	± 2 mV at 25 °C (77 °F) (constant flow)
Temperature Accuracy	0.1 °C (32.2 °F) between 0 - 80 °C (32 - 176 °F)	
Contents	316 stainless steel back panel with pH or ORP sensor, flowmeter, and junction box Temperature probe: Pt100	
Cable Length	7.7 m (25 ft.), supplied	
Dimensions (H x W x D)	304.8 x 384.2 x 165.1 mm (12 x 15.1 x 6.5 in.)	
Weight	3.6 kg (7.94 lb)	

\*Subject to change without notice.



# 5500sc Phosphate Analyzer

## Lower Maintenance, Less Downtime

Delivering reliable results that save you critical time and effort. For pure water / power applications.

### 90 days of continuous runtime

Only two litres of reagent are required for the analyser to perform unattended for up to 90 days; twice as long as the previous analyser versions.

### Save time on maintenance

The industry's only pressurized reagent delivery system eliminates the frequent maintenance associated with pumps.

### Avoid downtime

Predictive diagnostic tools, including Hach's proprietary Prognosys technology, warning LEDs, and high-visibility notification screens let you avoid unplanned downtime.

### Clean, fast and easy reagent change

No more dripping reagents on the instrument, the floor, or your clothing while fumbling with tubes and straws. Simply match the colour-coded cap to the sealed reagent bottle and twist gently.

### Verify easily with Hach Lab products so you don't waste time second-guessing

Grab Sample In and Grab Sample Out features allow quick analysis of a grab sample poured into the analyser, and facilitate taking a sample out of the analyser to verify in a lab test.

## Order Information

### Instruments

- 5500.KTO.PH.A1U** Hach 5500sc Phosphate High Range Analyzer, Proprietary chemistry only, AC, 1 channel
- 5500.KTO.PH.A2U** Hach 5500sc Phosphate High Range Analyzer, Proprietary chemistry only, AC, 2 channels
- 5500.KTO.PH.A4U** Hach 5500sc Phosphate High Range Analyzer, Proprietary chemistry only, AC, 4 channels
- 5500.KTO.PL.A1U** Hach 5500sc Phosphate Low Range Analyzer, Proprietary chemistry only, AC, 1 channel
- 5500.KTO.PL.A2U** Hach 5500sc Phosphate Low Range Analyzer, Proprietary chemistry only, AC, 2 channels
- 5500.KTO.PL.A4U** Hach 5500sc Phosphate Low Range Analyzer, Proprietary chemistry only, AC, 4 channels

Each Analyzer comes with a Hach reagents set for start up and up to 90 days of use. 24 VDC options are available too. Please visit [hach.com](http://hach.com) or contact Hach for further details.

### Reagents

- 6776100** 5500sc Phosphate High Range Reagent Set
- 2035400** 5500sc Phosphate Low Range Reagent Set

Part numbers may vary by country.

### Learn More



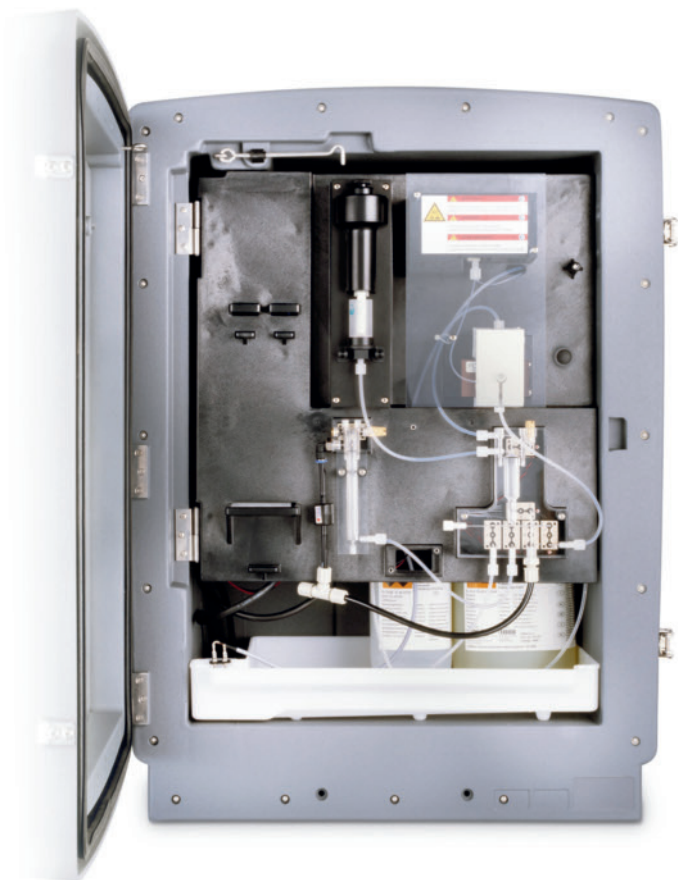
## Technical Data\*

<b>Application</b>	Pure water / Power
<b>Measuring Principle</b>	Colorimetric
<b>Range</b>	LR model: 4 - 3000 µg/L as PO <sub>4</sub> [Detection range capable of 4 - 5000 µg/L as PO <sub>4</sub> ] HR model: 200 - 50000 µg/L as PO <sub>4</sub>
<b>Accuracy</b>	LR model: ±4 µg/L or ±4% of reading, whichever is greater; HR model: ±500 µg/L or ±5% of reading, whichever is greater
<b>Response Time</b>	Typically, 9.5 minutes at 25 °C (77 °F); changes with temperature
<b>Reagent Consumption</b>	2 L of each reagent every 90 days with 15 minute cycle time
<b>Operating Temperature Range</b>	5 - 45 °C (41 - 113 °F)
<b>Operating Humidity</b>	5 - 95% relative humidity, non-condensing (indoor use only)
<b>Sample Pressure</b>	0.14 - 6 bar (to preset pressure regulator)
<b>Sample Temperature</b>	5 - 50 °C (41 - 122 °F)
<b>Sample Flow Rate</b>	55 - 300 mL/min
<b>Grab Sample</b>	Grab Sample In and Grab Sample Out capability
<b>Mounting</b>	Wall, panel or table
<b>Power Requirements (Voltage)</b>	100 - 240 VAC, 24 VDC
<b>Dimensions (H x W x D)</b>	804 x 452 x 360 mm (31.65 x 17.8 x 14.17 in.)
<b>Enclosure Rating</b>	IP56 / NEMA 4X
<b>Certifications</b>	CE (EN 61326-1: 2006; EN 61010-1: 2010; EN 60529: 1991, +A1:2000 ) KC (EN 61326-1: 2006) C-tick (EN 61326-1: 2006) cETLus (UL 61010-1: 2012; NEMA 250: 2003; CSA C22.2 No 61010-1: 2012)

\*Subject to change without notice.

# Phosphax sc Online Phosphate Analyzer

**The Phosphax sc online analyzer provides reliable and accurate PO<sub>4</sub> measurements**



## Multiple measurement ranges for a variety of wastewater applications

With detection limits as low as 0.05 mg/L and as high as 50 mg/L, the Phosphax sc phosphate analyzer can be used anywhere in the wastewater treatment process, from the influent or start of the phosphorus removal process where phosphate levels may be high to the effluent where phosphate levels are at their lowest.

## Low cost of operation with proven yellow method

The Phosphax sc analyzer determines ortho-phosphate concentration using the molybdovanadate yellow colorimetric method which optimizes reagent consumption and helps save on operating costs.

## Generate actionable insights from measurement data

The Phosphax sc is Smart Monitoring enabled so you can leverage Hach to collect, manage and analyse data from your instrument.

## Easy installation at the measurement point

Hach's Phosphax sc phosphate analyzer is designed to be installed at the measurement point (indoor and outdoor options). The housing is weatherproof and lockable for installation at the basin, even in the toughest climates. Mounting options include: wall, rail, or standing. The unit comes complete and assembled; no separate housing is required.

## Low maintenance

Several features make the Phosphax sc phosphate analyzer easy to use and maintain:

1. Automatic cleaning at customized intervals.
2. Automatic zero-calibration at each measuring cycle.
3. Prognosys Predictive Diagnostics alerts you to upcoming instrument issues and guides you on whether the changes in your measurements are due to your instrument or your water.
4. Easy access to reagents and wear parts.

**Learn More**



## Technical Data\*

	Range 1 (LXV422.99.1xxxx)	Range 2 (LXV422.99.2xxxx)
Range	0.05 - 15.0 mg/L PO <sub>4</sub> -P	1.0 - 50 mg/L PO <sub>4</sub> -P
Lower Limit of Detection (LOD)	0.05 mg/L PO <sub>4</sub> -P	1.0 mg/L PO <sub>4</sub> -P
Accuracy	Using standard solutions: 2% ± 0.05 mg/L	Using standard solutions: 2% ± 1.0 mg/L
Reagent Consumption	500 mL/month	1000 mL/month
Response Time	< 5 minutes	
Measurement Method	Photometric method using vanadate-molybdate	
pH Range	5 - 9 pH	
Permissible Chloride Range	Max. Cl <sup>-</sup> concentration: 1000 mg/L	
Operating Conditions	Indoor model: 5 - 40 °C (41 - 104 °F); 95% relative humidity, non-condensing Outdoor model: -20 - 45 °C (-4 - 113 °F) ; 95% relative humidity, non-condensing	
Sample Temperature	4 - 40 °C (39 - 104 °F)	
Sample Quality	Ultra filtrated or comparable	
Flow	1 - 20 L/h sample (free of suspended solids)	
Controller Compatibility	SC4500, SC1000, SC200	
Power Requirements (Voltage)	115 - 230 VAC, 50/60 Hz, power provided by SC controller or power box	
Dimensions (H x W x D)	Indoor model: 720 x 540 x 370 mm (28.35 x 21.25 x 14.5 in.) Outdoor model: 720 x 540 x 390 mm (28.35 x 21.25 x 15.35 in.)	
Weight	Without sample preparation system and without chemicals: 29 kg (64 lb) indoor model, or 31 kg (68 lb) outdoor model	
Enclosure Rating	Indoor model: IP54 Outdoor model: IP55	

\*Subject to change without notice.

## Order Information

## Analyzers

- 6159600** Phosphax sc Phosphate analyzer, 0.05-15 mg/L PO<sub>4</sub>-P, one channel continuous sample, 115-230 VAC
- 6159700** Phosphax sc Phosphate analyzer, 0.05-15 mg/L PO<sub>4</sub>-P, two channel continuous sample, 115-230 VAC
- 6159800** Phosphax sc Phosphate analyzer, 1-50 mg/L PO<sub>4</sub>-P, one channel continuous sample, 115-230 VAC
- 6159900** Phosphax sc Phosphate analyzer, 1-50 mg/L PO<sub>4</sub>-P, two channel continuous sample, 115-230 VAC

There are additional options available (indoor versions), please visit [hach.com](http://hach.com) or contact Hach for more information.

Please note: A sample filtration system (e.g. Filtrax) and a digital Hach SC controller are required for operation of the Phosphax sc. Sample filtration system and controller are sold separately.

For Filtration Systems please also see section Sample Preparation.

## Mounting Hardware

- LZY287** Stand mounting kit for SC analyzer without SC controller
- LZY286** Stand mounting kit for SC analyzer with SC controller
- LZY316** Rail mounting kit for SC analyzer without SC controller
- LZY285** Rail mounting kit for SC analyzer with SC controller

## Reagents

- 2825253** Reagent for Phosphax compact analyzer (high range and low range), 1000 mL
- 2825254** Reagent for Phosphax sc analyzer (high range and low range), 2000 mL
- 2825353** Cleaning solution for Phosphax compact analyzer (high range and low range), 1000 mL

## Accessories

- LZY303** Heated drain/connecting hose, 2 m, 115 V
- LQV155.99.00002** Power box without power connection cable
- LQV155.99.00012** Power box with power connection cable

Part numbers may vary by country.

# Phosphax sc LR Online Phosphate Analyzer



## High accuracy and stability in low range measurement

### Confidence in low range measurement values

The Phosphax sc LR features a new photometer with glass cuvette that results in high stability in low range measurement giving you confidence in your measurement values.

### Ensure compliance and lower plant-operating costs

The Phosphax sc LR features a new yellow method with split-reagent dosing, and a new photometer with twice the path length of the Phosphax sc. These features result in high accuracy in low range measurement that help you do just enough treatment to stay compliant and lower plant operating costs at the same time.

### Generate actionable insights from measurement data

The Phosphax sc LR is Smart Monitoring enabled so you can leverage Hach to collect, manage and analyse data from your instrument.

#### Technical Data\*

Range	0.015 - 2 mg/L PO <sub>4</sub> -P
Accuracy	Using standard solutions: 2 % + 0.015 mg/L
Reproducibility	0.7 % + 0.005 mg/L
Response Time	10 min
Measurement Method	Two-beam photometer (yellow method)
Measuring Interval	10 - 120 min
pH Range	5 - 9 pH
Pressure Range	-30 - 50 mbar with continuous sample preparation; at overflow vessel
Permissible Chloride Range	Max Cl <sup>-</sup> concentration: 5000 mg/L
Operating Temperature Range	Indoor model: 5 - 40 °C (41 - 104 °F); 95% relative humidity, non-condensing Outdoor model: -20 - 45 °C (-4 - 113 °F); 95% relative humidity, non-condensing
Sample Temperature	4 - 45 °C (39 - 113 °F)
Sample Quality	Ultra filtrated or comparable
Flow	1.0 - 20.0 L/h
Controller Compatibility	SC4500, SC1000, SC200
Power Requirements (Voltage)	115 - 230 VAC, powered by Power Box or SC Controller
Dimensions (H x W x D)	Indoor model: 720 x 540 x 370 mm (28.35 x 21.25 x 14.5 in.) Outdoor model: 720 x 540 x 390 mm (28.35 x 21.25 x 15.35 in.)
Weight	Without sample preparation system and without chemicals: 29 kg (64 lb) indoor model, or 31 kg (68 lb) outdoor model
Enclosure Rating	Indoor model: IP54 Outdoor model: IP55

\*Subject to change without notice.

#### Order Information\*

##### Analyzers

- LXV422.99.33001** Phosphax sc LR Online Phosphate Analyzer, Outdoor, 0.015 - 2 mg/L PO<sub>4</sub>-P, 1-channel
- LXV422.99.33011** Phosphax sc LR Online Phosphate Analyzer, Indoor, 0.015 - 2 mg/L PO<sub>4</sub>-P, 1-channel

*Please note: A sample filtration system (e.g. Filtrax) and a digital Hach SC controller are required for operation of the Phosphax sc LR. Sample filtration system and controller are sold separately.*

*For Filtration Systems please also see section Sample Preparation.*

##### Mounting Hardware

- LZY316** Rail mounting kit for SC analyzer without SC controller
- LZY287** Stand mounting kit for SC analyzer without SC controller
- LZY286** Stand mounting kit for SC analyzer with SC controller
- LZX355** Wall mounting kit
- LZY285** Rail mounting kit for SC analyzer with SC controller

##### Reagents

- LCW956** Phosphax sc LR Reagent A
- LCW957** Phosphax sc LR Reagent B
- LCW955** Phosphax sc LR Reagent Set
- LCW958** Phosphax sc LR Standard Solution
- LCW959** Phosphax sc LR Cleaning Solution

##### Accessories

- LZY302** Heated drain/connecting hose, 2 m, 230 V
- LZY431** Power extension cable for SC1000, 5 m, 115-230 VAC
- LQV155.99.00002** Power box without power connection cable
- LQV155.99.00012** Power box with power connection cable

*Part numbers may vary by country.*

**Learn More**





# 5500sc Silica Analyzer

## Lower Maintenance, Less Downtime

Delivering reliable results that save you critical time and effort.

### 90 days of continuous runtime

Only two litres of reagent are required for the analyser to perform unattended for up to 90 days; twice as long as the previous analyser versions.

### Save time on maintenance

The industry's only pressurized reagent delivery system eliminates the frequent maintenance associated with pumps.

### Avoid downtime

Predictive diagnostic tools, including Hach's proprietary Prognosys technology, warning LEDs, and high-visibility notification screens let you avoid unplanned downtime.

### Clean, fast and easy reagent change

No more dripping reagents on the instrument, the floor, or your clothing while fumbling with tubes and straws. Simply match the colour-coded cap to the sealed reagent bottle and twist gently.

### Verify easily with Hach Lab products so you don't waste time second-guessing

Grab Sample In and Grab Sample Out features allow quick analysis of a grab sample poured into the analyser, and facilitate taking a sample out of the analyser to verify in a lab test.

## Order Information

### Instruments

<b>5500.KTO.S0.A1U</b>	Hach 5500sc Silica Analyzer, proprietary chemistry only, AC, 1 channel
<b>5500.KTO.S0.A2U</b>	Hach 5500sc Silica Analyzer, proprietary chemistry only, AC, 2 channels
<b>5500.KTO.S0.A4U</b>	Hach 5500sc Silica Analyzer, proprietary chemistry only, AC, 4 channels
<b>5500.KTO.S0.A6U</b>	Hach 5500sc Silica Analyzer, proprietary chemistry only, AC, 6 channels

Each Analyzer comes with a Hach reagents set for start up and up to 90 days of use. 24 VDC options are available too. Please visit [hach.com](http://hach.com) or contact Hach for further details.

### Reagents

<b>6783600</b>	5500sc Silica Reagent Set
<b>6774802</b>	5500sc Reagent 1 Silica, 2 L
<b>6774902</b>	5500sc Reagent 2 Silica, 2 L
<b>6775102</b>	5500sc Reagent 3 Silica, package
<b>6775002KTO</b>	5500sc Standard 1 Silica, 2 L

Part numbers may vary by country.

### Learn More



## Technical Data\*

<b>Application</b>	Pure water / Power
<b>Measuring Principle</b>	Colorimetric
<b>Range</b>	0 - 5000 µg/L as SiO <sub>2</sub>
<b>Accuracy</b>	0 - 500 µg/L: ±1% or ±1 µg/L of reading, whichever is greater; 500 - 5000 µg/L: ±5%
<b>Response Time</b>	Typically, 9.5 minutes at 25 °C (77 °F); changes with temperature
<b>Reagent Consumption</b>	2 L of each reagent every 90 days with 15 minute cycle time
<b>Operating Temperature Range</b>	5 - 45 °C (41 - 113 °F)
<b>Operating Humidity</b>	5 - 95% relative humidity, non-condensing (indoor use only)
<b>Sample Pressure</b>	0.14 - 6 bar (to Preset Pressure Regulator)
<b>Sample Temperature</b>	5 - 50 °C (41 - 122 °F)
<b>Sample Flow Rate</b>	55 - 300 mL/min
<b>Grab Sample</b>	Grab Sample In and Grab Sample Out capability
<b>Mounting</b>	Wall, panel or table
<b>Power Requirements (Voltage)</b>	100 - 240 VAC, 24 VDC
<b>Outputs</b>	4 to 20 mA
<b>Dimensions (H x W x D)</b>	804 x 452 x 360 mm (31.65 x 17.8 x 14.17 in.)
<b>Enclosure Rating</b>	IP56 / NEMA 4X
<b>Certifications</b>	CE (EN 61326-1: 2006; EN 61010-1: 2010; EN 60529: 1991, +A1:2000 ) KC (EN 61326-1: 2006) C-tick (EN 61326-1: 2006) cETLus (UL 61010-1: 2012; NEMA 250: 2003; CSA C22.2 No 61010-1: 2012)

\*Subject to change without notice.



# Sonatax sc Sludge Level Probe

**The superior way of measuring  
sludge levels: Sonatax sc process probe**

## Reduced Maintenance with Innovative Wiper Design

The wiper functions with a magnetic connection and without a shaft so there are no o-rings to replace and no need to open the probe housing. Tools are not needed to replace the wiper blades.

## Superior Accuracy with Automatic Frequency Adjustment

The Sonatax sc probe automatically scans a range of frequencies to find the ideal settings for the solids concentration for the application. Built-in software disregards signals reflected from tank structures such as pipes, rods, etc.

## Unique Features

The fully digitized Sonatax sc probe means there are no electromagnetic interferences. Instantly resume measurements after skimmer passes with the built-in position sensor that also compensates for angle when the probe is not mounted exactly vertically.

## Temperature Compensation for Seasonal Changes

Automatic temperature compensation assures ultrasonic measurement is unaffected by seasonal changes in water temperature - seasonal calibration becomes unnecessary.

## Visual Performance Indicator Enhances Troubleshooting

A visual performance LED indicator light on the Sonatax sc probe provides quick glance assurance of proper performance. Green light indicates "okay", red indicates warning. Troubleshooting, particularly in applications with multiple sludge blanket level probes connected to one controller, is quick and easy.

### Technical Data\*

Measuring Principle	Ultrasonic measurement
Range	0.2 - 12 m (0.65 - 39.4 ft) sludge level
Resolution	0.03 m (0.1 ft) sludge level
Accuracy	0.1 m (0.33 ft)
Operating Temperature Range	0 - 50 °C (32 - 122 °F)
Pressure Range	≤ 0.3 bar or ≤ 3 m
Power Requirements (Voltage)	12 V, 2.4 W, provided by SC controller
Mounting Configurations	Fixed pole mount, pivot mount or chain mount
Calibration	Factory calibrated
Material	POM: Wiper Magnet Encapsulating Compound: Epoxy resin; Wiper Rubber: Silicone rubber
Controller Compatibility	SC4500, SC1000, SC200
Certifications	CE certified to EN 61326-1:1998 /A1/A2/A3 & EN 61010-1:2001
Dimensions (D x L)	185 x 130 mm (7.28 x 5.12 in.)
Weight Sensor	3.5 kg (7.7 lb)

*\*Subject to change without notice.*

### Order Information

<b>LXV431.99.00002</b>	Sonatax sc Sludge Level Probe
<b>5773000</b>	Sonatax sc Sludge Level Probe with Pivot Mount Hardware
<i>A Hach SC controller is required to operate the Sonatax sc sensor, controller must be purchased separately.</i>	
<b>Accessories</b>	
<b>LZY714.99.42120</b>	Fixed Point Mount for Probe For mounting probe at a fixed location.
<b>LZY714.99.00030</b>	Extension pipe 1 m (3.3 ft.) For fixed point mount LZY714.99.42120
<b>LZY714.99.00040</b>	Extension pipe 2 m (6.6 ft.) For fixed point mount LZY714.99.42120
<b>LZY714.99.62160</b>	Pivot Mount for Probe (0.35 m (1.15 ft.) extension pipe) For mounting probe on a pivot assembly for clarifiers with skimmers.
<b>LZY714.99.72160</b>	Pivot Mount for Probe (1 m (3.3 ft.) extension pipe) For mounting probe on a pivot assembly for clarifiers with skimmers.
<b>LZX414.00.73000</b>	Rail Mount Kit for Probe (rail mount must be ordered with either LZY714.99.42120 or LZY714.99.72160)
<b>LZX914.99.11300</b>	Chain Mount Kit for Sonatax sc
<b>LZX328</b>	Wiper Blades for Sonatax sc, 5/pk

*Part numbers may vary by country.*

**Learn More**



# NA5600sc Online Sodium Analyzer

## Ensure uptime with accurate, low-level sodium measurements and predictive diagnostics.

Be confident in your steam cycle water with proprietary predictive diagnostic tools, automatic electrode reactivation to avoid downtime, less maintenance with 90-day reagent replacement, and a convenient small footprint for easy integration with the new Hach® NA5600sc Sodium Analyzer.



## Optimize Operation and Response Time with Automatic Electrode Reactivation

To maintain optimum response time and accuracy, the NA5600sc analyzer provides automatic electrode reactivation. Reactivation uses non-hazardous chemicals and eliminates the need for manual reactivation or electrode etching.

## Space-Saving Design

Smaller instrument footprint with streamlined layout to allow for easy integration into existing or new sites.

## Low Maintenance

Maintenance of the NA5600sc Sodium Analyzer requires reagent replenishment only every 90 days and annual replacement of reagent tubing and the sodium electrode. Clear step-by-step instructions are provided to simplify maintenance operations.

## Avoid Downtime

Predictive diagnostic tools, including Hach's proprietary Prognosys technology, warning LEDs, and high visibility notification screens let you avoid unplanned downtime.

### Technical Data\*

<b>Range</b>	Analyzers without cationic pump: 0.01 ppb - 10,000 ppb Analyzers with cationic pump: 0.01 ppb - 200 ppm
<b>Response Time</b>	From 0.1 ppb to 10 ppb: T90 ≤ 3 minutes, T95 ≤ 4 minutes From < 1 ppb to 100 ppb: T90 < 2 minutes, T95 < 3 minutes (about 150 s)
<b>Sample conditioner</b>	For non-cationic applications: Di-isopropylamine (DIPA) (1 L/90 days) at 25 °C for a sample pH target of 10.5 For cationic applications: DIPA (1 L/month) at 25 °C for a sample pH target of 10.5
<b>Number of Channels</b>	1, 2 or 4 with programmable sequence
<b>Max. Concentration of Suspended Solids in Sample</b>	< 2 NTU, no oil, no grease For boiler sample type install approx. 100 µm filter
<b>Acidity</b>	< 50 ppm, non-cationic application < 250 ppm, cationic application
<b>Sample Temperature</b>	5 - 45 °C (41 - 113 °F)
<b>Sample Pressure</b>	0.2 - 6 bar (3 - 87 psi)
<b>Sample Flow Rate</b>	100 - 150 mL/min (6 - 9 L/h)
<b>Power requirements</b>	100 - 240 VAC; 50/60 Hz
<b>Protection Rating</b>	Analyzer with enclosure: NEMA 4/IP65 Analyzer without enclosure: IP65, PCBA housing
<b>Material</b>	Polyol case, PC door, PC hinges and latches, 304/316 SST hardware
<b>Dimensions</b>	Analyzer with enclosure: 681 mm x 452 mm x 335 mm (H x W x D) Analyzer without enclosure: 681 mm x 452 mm x 254 mm (H x W x D)
<b>Weight</b>	Analyzer with enclosure: 20 kg (40.1 lb) with empty bottles Analyzer without enclosure: 14 kg (30.7 lb) with empty bottles
<b>Maintenance Interval</b>	Every 90 days: refill electrolyte, reactivation, conditioning, and calibration solution

\*Subject to change without notice.

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## Order Information

### Analysers

Unit with Enclosure	Panel Mount Unit	
LXV526.97.1011A	LXV526.97.2011A	NA5600sc Sodium Analyzer, 1-channel
LXV526.97.1012A	LXV526.97.2012A	NA5600sc Sodium Analyzer, 2-channel
LXV526.97.1014A	LXV526.97.2014A	NA5600sc Sodium Analyzer, 4-channel
LXV526.97.1111A	LXV526.97.2111A	NA5600sc Sodium Analyzer, 1-channel, with Autocalibration
LXV526.97.1112A	LXV526.97.2112A	NA5600sc Sodium Analyzer, 2-channel, with Autocalibration
LXV526.97.1114A	LXV526.97.2114A	NA5600sc Sodium Analyzer, 4-channel, with Autocalibration
LXV526.97.1211A	LXV526.97.2211A	NA5600sc Sodium Analyzer, 1-channel, with Cation Kit
LXV526.97.1212A	LXV526.97.2212A	NA5600sc Sodium Analyzer, 2-channel, with Cation Kit
LXV526.97.1214A	LXV526.97.2214A	NA5600sc Sodium Analyzer, 4-channel, with Cation Kit
LXV526.97.1311A	LXV526.97.2311A	NA5600sc Sodium Analyzer, 1-channel, with Cation Kit & Autocalibration
LXV526.97.1312A	LXV526.97.2312A	NA5600sc Sodium Analyzer, 2-channel, with Cation Kit & Autocalibration
LXV526.97.1314A	LXV526.97.2314A	NA5600sc Sodium Analyzer, 4-channel, with Cation Kit & Autocalibration

### Upgrade Options

8371200	Kit, K-pump NA5600sc
9013200	Modbus RS232/485 Module
9173900	Profibus DP Module
8425700	Hart Module
8428000	Prognosys NA5600sc License Kit

### Accessories

595=010=000	Sample Filter, 100 micron, metric fittings
595=010=005	Sample Filter; 100 micron, imperial fittings
8368900	Kit, Heater Exchange, NA5600sc

### Consumables and Spare Parts

9660500	NA5600sc one year spare parts kit
595=010=906	Replacement Filter Cartridges, pk/6
2834453	Di-isopropylamine (DIPA), 1 L
2835153	Sodium Standard, 10 ppm, 1 L
2834253	Sodium Standard, 100 ppm, 1 L
2507149	Sodium Nitrate, 0.5M, 500 mL

Part numbers may vary by country.





# TSS Portable Hand-held Turbidity, Suspended Solids, and Sludge Level System



Learn More



## Three Parameters in One Instrument

The Hach TSS Portable Hand-held Turbidity, Suspended Solids, and Sludge Blanket Level Instrument's unique multi-beam alternating light method with infrared diode system gives it a broad measuring range for both turbidity and suspended solids in one portable handheld instrument.

## Multiple Calibration Curves for Convenience

It stores up to four different calibration curves for suspended solids and one for turbidity. There's no need for constant re-calibration for different locations or types of sludge.

## Easy Sludge Blanket Levels

The sludge blanket level can be measured by setting the units to mg/L, g/L or percent. Calibrate the instrument and then slowly lower the sensor into the clarifier. The suspended solids concentration will significantly increase as it reaches the sludge blanket level. Once the blanket level is reached, examine the sensor cable which is marked every meter to determine the sludge blanket level depth from the water surface.

## Air Bubble Compensation for Accuracy

The instrument software automatically compensates for air bubbles to prevent its influence on the measurement. Turbidity is pre-calibrated with a calibration curve stored in the instrument. For suspended solids, each of the calibration curves can be closely adjusted to the laboratory results because each calibration curve can use up to three points per curve plus a zero value.

## Durable Materials for Long Life

The probe is made of polished stainless steel with a scratch-resistant sapphire window to withstand harsh environments. Polished stainless steel helps keep particles from sticking to the surface of the probe. The internal memory stores up to 290 measuring values, including time, date, measurement, location, and homogeneity. Three operating modes are available: single, interval, or continuous.

## Rechargeable Battery Power

With rechargeable batteries, the Hach TSS Portable Hand-held Turbidity, Suspended Solids, and Sludge Blanket Level Instrument can provide up to one month of usage in typical measuring mode and up to four hours of continuous operation. Interval mode has automatic shut off between measurements for longer operation in the field. The battery status is always visible. The operating menu is user-friendly and is displayed on an easy-to-read LCD graphic display.

## Technical Data\*

Measuring Range TSS	0.001 - 400 g/L (upper range depending on sample characteristics)
Measuring Range Turbidity	0.001 - 9999 FNU
Material	Sensor Body: stainless steel; Probe: stainless steel; Sensor Window: sapphire
Power Requirements (Voltage)	Meter: 6 rechargeable NiMH batteries or 6 "AA" standard batteries
Dimensions	Probe (Ø X L) 40 mm x 29 cm (1.57 x 11.42 in.) Meter (H X W X D): 110 x 230 x 40 mm (4.33 x 9.06 x 1.57 in.) Case L: 450 mm (17.7 in)
Cable Length	10 m (32.8 ft.) cable with marks for distance
Protection Class	Probe IP68; Control unit IP 55

*\*Subject to change without notice.*

## Order Information

**LXV322.99.00002** TSS Portable Hand-held Turbidity, Suspended Solids, and Sludge Blanket Level System; includes meter, probe, rechargeable batteries, charger for rechargeable batteries with four plug adapters, manual, quick start guide and carrying case.

### Replacement Parts

**LXV320.99.00002** TSS Portable Hand-held Turbidity, Suspended Solids, and Sludge Blanket Level Meter

**LXV321.99.00002** TSS Turbidity, Suspended Solids, and Sludge Blanket Level Probe, with 10 m (32.8 ft.) cable and plug

**LZY607** Charger; for rechargeable batteries; includes 4 plug adapters (for Spain, United States, Great Britain, Hong Kong, Malaysia, Singapore, Australia, New Zealand, and China)

**LZY606** Battery Holder

**LZY604** Rechargeable NiMH Batteries; qty. 6

*Part numbers may vary by country.*

# TSS sc Suspended Solids Probes



## Measures online suspended solids in virtually all applications under the strictest regulatory conditions

TSS sc probes measure online suspended solids from spring water to corrosive chemicals under the strictest regulatory conditions. With 8 different probe models with several mounting options, it is possible to measure suspended solids over a wide range of concentrations with just one probe.

### Unique Multi-Beam Pulsed Infrared Light System

TSS sc probes have a double optical system with two pulsating infrared LEDs and four receivers. This combined multiple beam alternating light method with beam focusing facilitates accurate color independent measurement of turbidity from 0.001 to 4,000 FNU and suspended solids from 0.001 to 500 g/L.

### Automatic Compensation for Air Bubbles and Temperature Swings for Accuracy

Special software gives the system the ability to recognize gas bubbles or temperature swings for a more accurate suspended solids or turbidity measurement.

### Standard-Compliant and Precise with Easy Calibration

The turbidity measurement complies with the standard DIN EN 27027 (ISO 7027). Calibration is not necessary. If the probe is used to measure the solids content, a one-point calibration suffices. For special applications, curves can be defined using several calibration points.

### Withstands Difficult Conditions and Harsh Environments

Probes are made of highly polished stainless steel or titanium with a scratch resistant sapphire window. They are designed to withstand harsh environments and keep particles from sticking to the surface.

#### Technical Data\*

<b>Models</b>	TSS sc TSS W sc TSS HT sc TSS Vari sc TSS XL sc TSS EX1 sc TSS Titanium2 sc TSS Titanium7 sc
<b>Mounting Configurations</b>	Tank-side, Triclamp, Inline, Varivent measuring tube, XL measuring tube
<b>Measurement Method</b>	Combined multiple beam alternating light method with infrared diode system and beam focusing Turbidity (TRB): 2-channel 90° scattered light measurement in accordance with DIN EN ISO 7027, wavelength = 860 nm Solids (TSS): 90° and 120° scattered light measurement, wavelength = 860 nm
<b>EExp / Hazardous Location</b>	Class I Div 2 certified (TSS EX1 sc only)
<b>Range</b>	Turbidity (TRB): 0.001 - 9999 NTU Solids (TSS): 0.001 - 500 g/L
<b>Accuracy</b>	Turbidity: Up to 1000 FNU/NTU: < 5 % of measurement value or ±0.01 NTU, whichever is greater
<b>Repeatability</b>	Turbidity (TRB): < 3% Solids (TSS): < 4%
<b>Response Time</b>	1 s < T90 < 300 s (adjustable)
<b>Calibration</b>	Turbidity (TRB): Factory calibrated Solids (TS): To be calibrated by customer on site Zero point: Permanently calibrated in the factory
<b>Pressure Range</b>	< 6 bar: TSS W sc < 10 bar: TSS sc, TSS HT sc, TSS Titanium2 sc, TSS Titanium7 sc ≤ 10 bar: TSS EX1 sc < 16 bar: TSS Vari sc, TSS XL sc
<b>Ambient Temperature</b>	0 - 50 °C (32 - 122 °F): TSS W sc 0 - 60 °C (32 - 140 °F): TSS sc, TSS Titanium2 sc, TSS Titanium7 sc 0 - 80 °C (32 - 176 °F): TSS Vari sc, TSS XL sc 0 - 90 °C (32 - 194 °F): TSS HT sc -10 - 50 °C (14 - 122 °F): TSS EX1 sc
<b>Controller Compatibility</b>	SC4500, SC1000, SC200
<b>Dimensions</b>	Tank-side models, installation sensor Inline models: 330 x 40 mm (13 x 1.6 in.) (L x D) Installation sensor Triclamp models: 332 x 40 mm (13.1 x 1.6 in.) (L x D) TSS Vari sc, TSS XL sc: 232 x 40 mm (9.1 x 1.6 in.) (L x D)
<b>Weight</b>	Tank-side models, installation sensor Inline/Triclamp models: approx. 1.6 kg (3.5 lb) TSS Vari sc, TSS XL sc: approx. 1.5 kg (3.3 lb) TSS EX1 sc: approx. 2.7 kg (5.95 lb)

\*Subject to change without notice.

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## Order Information

### Overview Probes and Mounting Options\*

Model	Type of mounting	Description	Prod. No.
<b>Stainless steel</b>			
TSS sc	Tank-side mounting	All purpose standard probe for turbidity and suspended solids measurement.	LXV323.99.10002
	Weld-on fitting	All purpose probe with Triclamp.	LXV323.99.20002
	Ball valve fitting	All purpose probe for simple inline installation.	LXV323.99.30002
TSS W sc	Tank-side mounting	All purpose probe with wiper to ensure a clear view. For use in high solids environments.	LXV324.99.10002
	Weld-on fitting	All purpose probe with wiper, with Triclamp.	LXV324.99.20002
	Ball valve fitting	All purpose probe with wiper for simple inline installation.	LXV324.99.30002
TSS HT sc	Tank-side mounting	Turbidity and suspended solids probe for use in high temperature environments of up to 90 °C and 95 °C for short intervals.	LXV325.99.10002
	Weld-on fitting	High temperature probe with Triclamp.	LXV325.99.20002
	Ball valve fitting	High temperature probe for simple inline installation.	LXV325.99.30002
TSS Vari sc	Varivent measuring tube (available at external supplier)	Turbidity and suspended solids probe for colour-independent measurement of highly concentrated sludges. This probe connects to Varivent piping systems.	LXV326.99.10002
TSS XL sc	XL weld-on fitting	Turbidity and suspended solids probe for colour-independent measurement of highly concentrated sludges. This probe connects to Triclamp piping systems.	LXV327.99.10002
TSS EX1 sc	Tank-side mounting	Turbidity and suspended solids probe designed for use in hazardous locations (Class I Div 2).	LXV328.99.10002
	Ball valve fitting	Turbidity and suspended solids probe designed for use in hazardous locations (Class I Div 2) with Triclamp.	LXV328.99.20002
	Ball valve safety fitting	Turbidity and suspended solids probe designed for use in hazardous locations (Class I Div 2) for simple inline installation.	LXV328.99.30002
<b>Titanium</b>			
TSS Titanium sc	User defined	Turbidity and suspended solids Titanium2 probe for use in aggressive or corrosive environments.	LXV329.99.10002
	User defined	Turbidity and suspended solids Titanium2 probe with Triclamp for simple inline installation and quick access for maintenance.	LXV329.99.20002
TSS Titanium7 sc	User defined	Turbidity and suspended solids Titanium7 probe for use in brine, seawater, or high salinity environments.	LXV330.99.10002
	User defined	Turbidity and suspended solids Titanium7 probe with Triclamp for simple inline installation and quick access for maintenance.	LXV330.99.10002

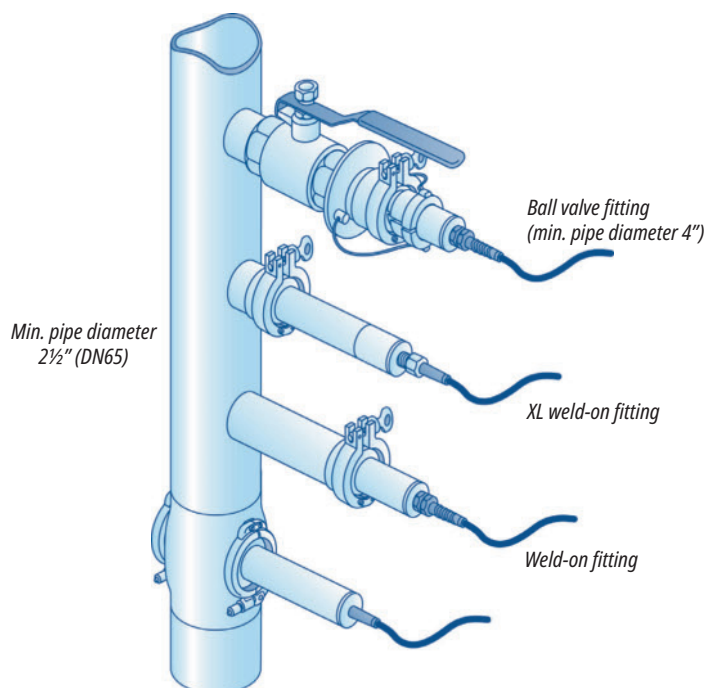
\*Subject to change without notice.

Part numbers may vary by country.

## Order Information

### Mounting Hardware

Prod. No.	Description
LZY714.99.53120	Stainless steel pole mounting kit for TSS sc probes, incl. 10 cm bracket and 2 m pole with 90° adapter
LZU300.99.00000	Ball valve armature for TSS sc Triclamp
LZY630.00.10000	Ball valve armature for TSS sc, TSS W sc, and TSS HT sc inline probes including non-coped stainless steel welding flange LZX660
LZY630.00.11000	Ball valve armature for TSS sc, TSS W sc, and TSS HT sc inline probes including non-coped carbon steel welding flange LZX661
LZY630.00.12000	Ball valve armature for TSS sc, TSS W sc, and TSS HT sc inline probes without welding flange
LZY630.00.20000	Ball valve safety armature for TSS EX1 sc Inline probe including non-coped stainless steel welding flange LZX660
LZY630.00.21000	Ball valve armature for TSS EX1 sc Inline probe including non-coped carbon steel welding flange LZX661
LZY630.00.22000	Ball valve armature for TSS EX1 sc inline probe without welding flange
LZX660	Non-coped stainless steel welding flange for insertion kit
LZX661	Non-coped carbon steel welding flange for insertion kit



# Solitax sc Turbidity & Suspended Solids Sensors

**Accurate, color-independent  
suspended solids and  
turbidity measurements**



## **Greater accuracy, less maintenance**

Hach®'s Solitax sc sensors provide accurate, colour-independent measurement of turbidity and suspended solids in drinking water, wastewater and industrial process applications. A self-cleaning device prevents biological growth and interference of gas bubbles. This system's reliable performance and full data communication capability help improve process control and reduce treatment costs associated with polymer use, digester volume, and sludge handling.

## **Excellent correlation to laboratory analysis**

Solitax sc sensors show an exceptional correlation to laboratory analysis. On-line measurement not only saves time on manual analysis, but also provides critical real-time measurements that can be used to operate the plant more efficiently.

## **Fully serviceable sensors**

Conventional turbidity and suspended solids sensors are potted and are discarded when they no longer function. Solitax sc sensors are fully serviceable, which often doubles the useful life of the sensor.

## **Easy one-point calibration**

Factory calibrated in conformity with DIN EN ISO 7027 for long-term calibration stability. Calibration is easy with a simple correction factor procedure.

## **Multi-channel, multi-parameter system**

Multiple Solitax sc sensors can be installed on one Hach SC Controller. The same controller can also accommodate any combination of parameters. All of Hach's model sc sensors are "plug and play" with no complicated wiring or set-up procedure necessary.

**Learn More**





**Technical Data\***

	For insertion in pipes		For immersion in open tanks		
Model	Solitax inline sc	Solitax highline sc	Solitax t-line sc	Solitax ts-line sc	Solitax hs-line sc
Parameter	Suspended Solids, Turbidity	High Range Suspended Solids, Turbidity	Turbidity	Suspended Solids, Turbidity	High Range Suspended Solids, Turbidity
Range	TSS content: 0.001 mg/L - 50 g/L  Turbidity: 0.001 - 4000 NTU	TSS-content: 0.001 - 500 g/L; 0.001 - 500,000 mg/L (the upper range is dependent on the sample property)  Turbidity: 0.001 - 4000 NTU	Turbidity: 0.001 - 4000 NTU	TSS content: 0.001 mg/L - 50 g/L  Turbidity: 0.001 - 4000 NTU	TSS-content: 0.001 - 500 g/L; 0.001 - 500,000 mg/L (the upper range is dependent on the sample property)  Turbidity: 0.001 - 4000 NTU
Units	Turbidity: User selectable - NTU, FNU, or TE/F Suspended Solids: User selectable - g/L, mg/L, ppm, or % solids				
Application					
Turbidity - Drinking Water	•	•	•	•	•
Turbidity - Wastewater	•	•	•	•	•
Solids - Primary Sludge		•			•
Solids - Thickened Sludge		•			•
Solids - Active Sludge	•	•		•	•
Solids - Dewatered Return Sludge	•	•		•	•
Solids - Digested Sludge		•			•
Solids - Centrate	•	•		•	•
Solids - Lime Sludge	•	•		•	•
Accuracy	Turbidity up to 1000 NTU: without calibration < 5% of the measured value ±0.01 NTU with calibration < 1% of the measured value ±0.01 NTU				
Repeatability	TSS content: < 3% Turbidity: < 1%				
Response Time T90	1 - 300 s adjustable				
Calibration Method	Turbidity: Formazin or Stablcal Standard (at 800 NTU). Suspended Solids: Sample specific, based on gravimetric TSS analysis with a correction factor procedure.				
Certifications	CE, MCERTS				
Flow	Max. 3 m/s (the presence of air bubbles affects the measurement)				
Operating Temperature Range	0 - 40 °C (32 - 104 °F)				
Controller Compatibility	SC4500, SC1000, SC200				
Pressure Range	Stainless steel insertion sensor: <6 bar or <60 m		PVC: <1 bar or <10 m	Stainless steel immersion sensor: <6 bar or <60 m PVC: <1 bar or <10 m	
Material	Optics carrier and sleeve: stainless steel 1.4571 or black PVC Wiper arm: stainless steel 1.4581 Wiper blade: silicone (standard) Optional: FKM/FPM (LZX578) Wiper shaft: stainless steel 1.4571 Threaded cable fitting: stainless steel 1.4305 or white PVC				
Weight	Immersion: Stainless steel: 1.38 kg (3 lb.); PVC: 0.52 kg (1.15 lb.) Insertion: Stainless steel: 2.4 kg (5.3 lb.)				
Cable Length	10 m (33 ft) (optional extension cables available)				

\*Subject to change without notice.

## Order Information

### Common Configurations: Solitax sc Turbidity and Suspended Solids Sensors with SC4500 Controller

#### Immersion in Open Tanks Applications

- LXV525.97KTO031** Solitax t-line sc Turbidity Immersion Probe (0.001 - 4000 NTU), PVC, with Wiper, SC4500 Controller
- LXV525.97KTO018** Solitax t-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) Immersion Probe, SS, with Wiper, SC4500 Controller
- LXV525.97KTO035** Solitax hs-line sc Turbidity (0.001 - 4000 NTU) and Suspended Solids (0.001 mg/L- 500 g/L) Immersion Probe, SS, with Wiper, SC4500 Controller

#### Insertion in Pipes Applications (includes insertion mounting kit)

- LXV525.97KTO026** Solitax inline sc Turbidity (0.001 to 4000 NTU) and Suspended Solids (0.001 mg/L to 50 g/L), with wiper, stainless steel
- LXV525.97KTO032** Solitax highline sc Turbidity (0.001 to 4000 NTU) and Suspended Solids (0.001 mg/L to 500 g/L), with wiper, stainless steel

#### NOTE:

1. Power cords must be ordered separately.
2. Fixed point installation kit or handrail mount kit must be ordered separately for all immersion analyzers.

### Individual Solitax sc Sensors

#### Immersion Sensors

- LXV423.99.10000** Solitax t-line sc Turbidity immersion probe, 0.001 - 4000 NTU, with wiper, PVC (Standard Drinking Water Application, Clarifiers)
- LXV423.99.12000** Solitax t-line sc Turbidity immersion probe, 0.001 - 4000 NTU, w/o wiper, PVC (Standard Drinking Water Application, Clarifiers)
- LXV423.99.00100** Solitax ts-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) immersion probe, with wiper, stainless steel
- LXV423.99.10100** Solitax ts-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) immersion probe, with wiper, PVC (Standard Wastewater Application)
- LXV423.99.12100** Solitax ts-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) immersion probe, w/o wiper, PVC
- LXV423.99.02100** Solitax ts-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) immersion probe, w/o wiper, stainless steel
- LXV423.99.10200** Solitax hs-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-500 g/L) immersion probe, with wiper, PVC
- LXV423.99.12200** Solitax hs-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-500 g/L) immersion probe, w/o wiper, PVC
- LXV423.99.00200** Solitax hs-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-500 g/L) immersion probe, with wiper, stainless steel
- LXV423.99.02200** Solitax hs-line sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-500 g/L) immersion probe, w/o wiper, stainless steel

#### Insertion Sensors

- LXV424.99.00100** Solitax inline sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) built-in probe, with wiper, stainless steel (Standard Wastewater Application)
- LXV424.99.02100** Solitax inline sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-50 g/L) built-in probe, w/o wiper, stainless steel
- LXV424.99.00200** Solitax highline sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-500 g/L) built-in probe, with wiper, stainless steel
- LXV424.99.02200** Solitax highline sc Turbidity (0.001-4000 NTU) and Suspended Solids (0.001-500 g/L) built-in probe, w/o wiper, stainless steel

### Installation Accessories

- LZY714.99.53120** Stainless Steel Pole Mounting Kit for Sensors, 10 cm
- LZX337** Stainless steel ball valve safety armature/extraction fitting for Solitax inline and highline sc probes, for filled and pressurised pipes, max. operating pressure 6 bar
- LZX936** Stainless steel ball valve armature, maximum operation pressure 1 bar/14.5 psi
- LZX660** Non-coped stainless steel welding flange for insertion kit
- LZX661** Non-coped carbon steel welding flange for insertion kit
- 5738400** Insertion Mounting Kit for inline and highline insertion sensors (ball valve safety armature and extraction system). Kit includes a 4 inch pre-coped Carbon Steel Flange. Non-coped flanges are available.
- AHA033NPT** Sensor Adapter, straight 1-1/2 FNPT
- AHA045NPT** Probe Adapter, elbow 1-1/2 FNPT 90°

*Additional Accessories are available, please visit [hach.com](http://hach.com) or contact Hach.*

# TU5 Series Turbidimeters

## The next standard in the evolution of turbidity

Only the TU5 Series Lab & Process Turbidimeters with 360° x 90° Detection™ deliver unprecedented confidence that a change in your reading is a change in your water.



### Groundbreaking 360° x 90° Detection Technology

The TU5 Series employs a patented optical design that sees more of your sample than any other turbidimeter, delivering the best low level precision and sensitivity while minimizing variability from test to test.

### Matching lab and online results

For the first time you will be able to remove the uncertainty of which measurement to trust, thanks to identical 360° x 90° Detection Technology in both instruments.

### Everything about turbidity – faster

The TU5 Series dramatically reduces the time needed to get a turbidity measurement you can rely on, with 98% less online sample surface area to clean, sealed vials for calibration, and the elimination of the need for indexing and silicone oil in the lab. Not to mention, a smaller online sample volume means you will detect events almost immediately.

### No surprises

Prognosys™ monitors your TU5 Series online instrument, proactively alerting you to maintenance needs before your measurement becomes questionable. And a Hach Service Agreement protects your investment and helps ensure that you stay in compliance and on budget.

Learn More



## Technical Data\*

<b>Light Source</b>	Class 2 laser product, with embedded 650 nm (EPA 0.43 mW) or Class 1 laser product, with embedded 850 nm (ISO), max. 0.55 mW (complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50)
<b>Range</b>	EPA: 0 - 700 NTU / FNU / TE/F / FTU 0 - 100 mg/L 0 - 175 EBC  ISO: 0 - 1000 NTU / FNU / TE/F / FTU 0 - 100 mg/L 0 - 250 EBC
<b>Accuracy</b>	±2% or 0.01 NTU from 0 - 40 NTU ±10% of reading from 40 - 1000 NTU based on Formazin primary standard
<b>Resolution</b>	0.0001 NTU / FNU / TE/F / FTU / EBC
<b>Repeatability</b>	Better than 1% of reading or ±0.002 NTU (TU5300sc) or ±0.0006 NTU (TU5400sc) on Formazin at 25 °C (77 °F), whichever is greater
<b>Stray Light</b>	<10 mNTU
<b>Units</b>	NTU, FNU, TE/F, FTU, EBC
<b>Signal Average Time</b>	TU5300sc: 30 - 90 seconds TU5400sc: 1 - 90 seconds
<b>Response Time</b>	TU5300sc: T90 <45 seconds at 100 mL/min TU5400sc: T90 <30 seconds at 100 mL/min
<b>Sample Temperature</b>	2 - 60 °C (35 - 140 °F)
<b>Sample Pressure</b>	6 bar (87 psi) maximum, compared to air at sample temperature range from 2 - 40 °C (35.6 - 104 °F)
<b>Sample Flow Rate</b>	100 - 1000 mL/min; optimal flow rate: 200 - 500 mL/min
<b>Operating Temperature Range</b>	0 - 50 °C (32 - 122 °F)
<b>Operating Humidity</b>	Relative humidity: 5 - 95% at different temperatures, non-condensing
<b>Storage Conditions</b>	-40 - 60 °C (-40 - 140 °F)
<b>Enclosure Rating</b>	Electronic compartment IP55; all other functional units IP65 with process head/ACM attached to the TU5300sc/ TU5400sc instrument
<b>Certifications</b>	CE compliant US FDA accession number: 1420493-000 EPA version, 1420492-000 ISO version Australian ACMA Marking
<b>Dimensions (H x W x D)</b>	249 x 268 x 190 mm (9.8 x 10.6 x 7.5 in.)
<b>Weight</b>	5.95 lbs. (2.7 kg); 11 lbs. (5.0 kg) with all accessories

\*Subject to change without notice.

## Order Information

### TU5300sc/TU5400sc Online Laser Turbidimeters

- LXV445.99.10112** TU5300sc Low Range Laser Turbidimeter, EPA Version  
**LXV445.99.10212** TU5400sc Ultra-High Precision Low Range Laser Turbidimeter, EPA Version  
**LXV445.99.53112** TU5300sc with Flow Sensor, Automatic Cleaning, RFID, and System Check, EPA Version  
**LXV445.99.53212** TU5400sc with Flow Sensor, Automatic Cleaning, RFID, and System Check, EPA Version

*Please note: Other turbidimeter configurations are available and RFID may not be available in all areas. Please visit [hach.com](http://hach.com) or contact your local Hach representative.*

*Please note: An SC controller is required for operation of the TU5300sc or TU5400sc, controllers are sold separately.*

### Calibration and Verification

- LZY835** Stabcal Primary Turbidity Standards Kit, 10/20/600 NTU, with RFID  
**LZY898** Stabcal Primary Turbidity Standards Kit without RFID (10 NTU, 20 NTU, 600 NTU)  
**LZY901** Glass Rod Secondary Turbidity Standard <0.1 NTU  
**LZY834** Replacement Vial for TU5300sc and TU5400sc

### TU5 Series Accessories

- LQV159.97.00002** Automatic Cleaning Module for TU5300sc and TU5400sc  
**LQV160.99.00002** Flow Sensor for TU5300sc and TU5400sc  
**LZY876** Desiccant Cartridge for TU5300sc and TU5400sc  
**LZY907.97.00002** Maintenance kit for TU5300sc and TU5400sc (incl. 20 NTU + 600 NTU vials and <0.1 NTU glass rod)  
**LZY903** Manual Vial Wiper for TU5200, TU5300sc, and TU5400sc

*Part numbers may vary by country.*

*See also Lab Instruments section for TU5 Series Laboratory Turbidimeters.*



# Surface Scatter® 7 sc Turbidimeter

## Outstanding results in high temperatures: Surface Scatter 7 sc

Use the Hach® Surface Scatter 7 sc Turbidimeter to monitor high range turbidity with greater accuracy and reliability than ever before. The optics never touch the sample in the Hach Surface Scatter 7 Turbidimeter so it's virtually maintenance free.

### Less fouling for easy maintenance

The Hach Surface Scatter 7 sc Turbidimeter (SS7) is uniquely designed so that the light source and photocell never come in contact with the sample. In fluids with high loads of suspended solids this makes sample cell cleaning and replacement unnecessary.

### Built to Last

All wetted parts of the Hach SS7 turbidimeter are made with corrosion-resistant materials for extended life. The photo-detector and light source assemblies are protected from the effects of corrosive vapors and heated samples. The SS7 turbidimeter is warranted against defects in materials or workmanship for two years from the date of shipment.

### Wide Measurement Range

The SS7 turbidimeter can reliably measure turbidity from 0.01 to 9999.9 NTU in samples that vary from clear water to corrosive and high temperature paper mill and oil field samples.



### Order Information

#### Sensor Only

**LPV431.99.00002** Surface Scatter 7 sc Turbidimeter

#### Sample Conditioning Options

**4668000** Bubble Trap, Head Regulator

**4028400** Flow Meter; 100 to 1600 mL/minute Calibration Standards

#### Calibration Standards

**7121649** Stablcal turbidity standard, 400 NTU, 500 mL

**246149** Formazin Turbidity Standard, 4000 NTU, 500 mL

#### Cables

**5796000** Digital Extension Cable, 7.7 m (25 ft.)

#### Optional Accessories

**101278** Lamp Assembly, Surface Scatter 7 sc

**101279** Detector Assembly, Surface Scatter 7 sc

**68700** Bottle Cleaning Brush

**4502100** Calibration Cup

**2351300** Standardization Plate Kit

**9220500** Sun shield

*Part numbers may vary by country.*

### Technical Data\*

<b>Range</b>	0.01 - 9999.9 NTU
<b>Accuracy</b>	±5% of reading or ±0.1 NTU (whichever is greater) from 0 - 2000 NTU
<b>Resolution</b>	<1000 NTU: 0.01 NTU 1000 - 9999.9 NTU: 0.1 NTU
<b>Repeatability</b>	1.0% or ±0.04 NTU, whichever is greater
<b>Response Time</b>	Initial response in 45 seconds
<b>Sample Flow Rate</b>	Sample flow required 1.0 - 2.0 L/min
<b>Sample Temperature</b>	0 - 50 °C (32 - 122 °F)
<b>Ambient Temperature</b>	0 - 50 °C (32 - 122 °F)
<b>Relative Humidity</b>	5 - 95% non-condensing
<b>Power Requirements (Voltage)</b>	100/230 VAC
<b>Installation Category</b>	Category II
<b>Enclosure Rating</b>	NEMA 12
<b>Mounting</b>	Wall mount
<b>Dimensions (H x W x D)</b>	685 x 670 x 285 mm (27 x 26.3 x 11.2 in.)
<b>Weight</b>	15.8 kg (34.8 lb)

*\*Subject to change without notice.*

### Learn More



# Process Turbidimeters

## Quick Reference Guide

Model	TU5300sc/TU5400sc	Solitax t-line sc	Surface Scatter 7 sc
Range	EPA: 0 - 700 NTU ISO: 0 - 1000 NTU	0.001 - 4000 NTU	0.01 - 9999.9 NTU
Regulatory	EPA Approved Hach Method 10258 ISO 7027-1:2016	ISO 7027	None
Light Source	Class 2 laser product, with embedded 650 nm (EPA 0.43 mW) or Class 1 laser product, with embedded 850 nm (ISO), max. 0.55 mW (complies with IEC/ EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50)	LED	Tungsten Bulb
Lifetime of Light Source (estimated)	10 years	3 - 4 years	1 year
Verification	Liquid: Stabcal®, Formazin (0.1 - 40 NTU) Dry: Glass Rod at <0.1 NTU		•
Auto Clean Feature	With LQV159.97.00002	•	With flush option
Built-in Bubble Removal System	•		
Rationing/Color Independent	•	•	
Mounting	Wall Mount	Immersion	Wall mount
Installation Requirement	Bypass flow	Insitu	Bypass flow
Calibration	Stabcal or Formazin		
Controller Compatibility	SC Controller		
Application			
Application	TU5300sc: Accurate and simple operation for low level turbidity measurement  TU5400sc: Most accurate option for measuring ultra-low turbidity levels. Ideal for membrane filter effluent monitoring and early particle breakthrough detection.	Ideal for in-pipe or immersion applications. Self-cleaning prevents errors due to fouling.  Can also display Suspended Solids (mg/L) (calculation based on turbidity).	Ideal for dirtier samples where high solids level can quickly foul a conventional turbidimeter.
Application Range	TU5300sc: Medium to low turbidity (< 40 NTU)  TU5400sc: Ultra-low turbidity (< 0.5 NTU)	High turbidity up to 4000 NTU	High turbidity up to 10,000 NTU
USEPA compliant for DWTP	•		
ISO Certified	•	•	
Recommended Applications:			
Drinking Water Treatment Plants	TU5300sc: clarifier effluent; filter effluent; combined filter effluent; distribution system, elevated tank  TU5400sc: filter effluent; combined filter effluent; distribution system, elevated tank	Raw water: clarifier effluent; filter backwash	Raw water: clarifier effluent
Wastewater Treatment Plants		Discharge to environment	
Power Plants	In-plant water testing	Raw water inlet when using river water source	
Food & Beverage Plants		Discharge to environment	

*\*Subject to change without notice.*

# BioTector B3500c Online TOC Analyzer

## Maximum uptime and reliability for TOC analysis in condensate applications

Using patented technology, only requiring scheduled maintenance every 6 months, allowing for dual stream monitoring, and having one of the most compact analyzer footprints, the Hach® BioTector B3500c delivers 99.86% uptime in condensate applications with the lowest operating cost.

### Worry-free TOC

With a patented Two Stage, Advanced Oxidation Technology system, the B3500c provides you with maximum reliability and uptime, without sacrificing accuracy.

### Lowest Cost of Ownership

Requiring you to replenish reagents, replace the pump tube, and calibrate only twice a year, the Hach BioTector B3500c has the lowest operating cost available.

### Small Footprint = Critical Wall Space Savings

With one of the most compact analyzer footprints, this analyzer frees up wall space for other needed instruments.

### Reagent Costs that Don't Kill the Bottom Line

By only needing to replenish reagents every six months, you will see direct bottom line savings in comparison to other systems requiring bi-weekly or monthly replacements.

### One Instrument for Multiple Streams

Providing the ability to monitor two streams sequentially, eliminates the double-cost of needing two separate analyzers.

## Order Information

### Instruments

- B5ACAA152AAC2** Hach BioTector B3500c TOC analyzer, 0-25 ppm, 1 stream, grab sample, 115 V AC
- B5AFAA152AAC2** Hach BioTector B3500c TOC analyzer, 0-25 ppm with 0-100 ppm range extension, 1 stream, grab sample, 115 V AC
- B5ACAA152AAF2** Hach BioTector B3500c TOC analyzer, 0-25 ppm, 2 streams, grab sample, 115 V AC
- B5AFAA152AAF2** Hach BioTector B3500c TOC analyzer, 0-25 ppm with 0-100 ppm range extension, 2 streams, grab sample, 115 V AC

*There are additional options available. Please contact Hach for more details.*

### Accessories

- 19-COM-160** BioTector Compressor 115 V / 60 Hz
- 19-COM-250** BioTector Compressor 230 V / 50 Hz
- 10-SMC-001** Air supply filter pack
- 19-KIT-123** Six months spare part kit for BioTector B3500

### Reagents

- 2038062** BioTector Reagent, 4.0 N NaOH
- 2038162** BioTector reagent, 6.0 N sulfuric acid with Mn catalyst

*Part numbers may vary by country.*

### Learn More



## Technical Data\*

Parameter	Direct measurement of Total Organic Carbon, Total Inorganic Carbon, Total Carbon
	Chemical Oxygen Demand, Biological Oxygen Demand via correlation
	Volatile Organic Carbon via calculation
Measurement Method	Infrared measurement of CO <sub>2</sub> after oxidation (DIN EN 1484:1997-08, ISO 8245:1999-03, EPA 415.1)
Oxidation Method	Patented Two-Stage Advanced Oxidation Process (TSAO) using Hydroxyl Radicals
Range	0 - 25 mg/L C, 0 - 100 mg/L C
Cycle Time	From 5.5 minutes, depending on range and application
Communication	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)
	Except for Zone 1 certification then Modbus RTU, Modbus TCP/IP & Modbus TCP/IP Redundant is available
Sample Inlet Temperature	0 - 60 °C (32 - 140 °F)
EExp / Hazardous Location	Certification options are available to European Standards, (ATEX Zone 1, Zone 2), North American Standards (Class I Division 2) and IECEx Zone 1
Particle Size	Up to 100 µm
Power Requirements	115 - 230 VAC; 50/60 Hz
Service Interval	6 month service intervals
Dimensions (H x W x D)	750 x 500 x 320 mm (29.5 x 19.7 x 12.6 in.)
Weight	46 kg (101.4 lb) (enclosure weight may change depending on system optional features)

*\*Subject to change without notice.*

# BioTector B3500dw TOC Analyzer



## Maximum uptime and reliability for TOC analysis in drinking water applications

The Hach BioTector B3500dw uses patented technology that only requires scheduled maintenance every 6 months and delivers 99.86% uptime ensuring total confidence in your TOC measurement.

### Rock solid reliability

With patented, EPA method approved Two Stage Advanced Oxidation Technology, the self-cleaning sample reactor of B3500dw delivers maximum reliability.

### Lowest cost of ownership

With its 99.86% uptime, semi-annual maintenance and reagent replenishment is all that is needed.

### Secure your source water

TSAO technology analyzes organics in your source that are invisible to scanning UV technologies.

## Technical Data\*

Parameter	TOC (NPOC), TIC, % TOC removal (with 2 streams) and COD, BOD after correlation
Measurement Method	Infrared measurement of CO <sub>2</sub> after oxidation (DIN EN 1484:1997-08, ISO 8245:1999-03, EPA 415.1)
Oxidation Method	Patented Two-Stage Advanced Oxidation Process (TSAO) using Hydroxyl Radicals, Hach Company method 10261 (EPA approved for drinking water)
Range	0 - 25 mg/L C
Cycle Time	From 5.5 minutes, depending on range and application
Communication	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)
Sample Inlet Temperature	0 - 60 °C (32 - 140 °F)
Ambient Temperature	5 - 45 °C (41 - 113 °F)
Particle Size	Up to 100 µm
Power Requirements	115 - 230 VAC; 50/60 Hz
Service Interval	6 month service intervals
Dimensions (H x W x D)	750 x 500 x 320 mm (29.5 x 19.7 x 12.6 in.)
Weight	46 kg (101.4 lb)

*\*Subject to change without notice.*

## Order Information

### Instruments

<b>DWACAA152AAA2</b>	Hach BioTector B3500dw Online TOC analyzer, 0 - 25 ppm, 1 stream, 120 V AC
<b>DWBCAA152AAA2</b>	Hach BioTector B3500dw Online TOC analyzer, 0 - 25 ppm, 1 stream, 230 V AC
<b>DWACAA152AAC2</b>	Hach BioTector B3500dw Online TOC analyzer, 0 - 25 ppm, 2 stream, 120 V AC
<b>DWBCAA152AAC2</b>	Hach BioTector B3500dw Online TOC analyzer, 0 - 25 ppm, 2 stream, 230 V AC

### Accessories

<b>19-COM-160</b>	BioTector Compressor 115 V / 60 Hz
<b>19-COM-250</b>	BioTector Compressor 230 V / 50 Hz
<b>10-SMC-001</b>	Air supply filter pack
<b>19-KIT-123</b>	Six months spare part kit for BioTector B3500

### Reagents

<b>2038062</b>	BioTector Reagent, 4.0 N NaOH
<b>2038162</b>	BioTector reagent, 6.0 N sulfuric acid with Mn catalyst

*Part numbers may vary by country.*

Learn More





# BioTector B3500e TOC Analyzer

## Highest reliability in TOC analysis for water control meets low cost of ownership.

The Hach® BioTector B3500e delivers the market leading, patented self-cleaning technology to provide accurate on-line TOC analysis. With 99.86% certified uptime the B3500e delivers maximum availability for reliable results. Ideal for water control, the B3500e helps you to be compliant while minimizing your operating costs.

### Ensure environmental compliance

The B3500e is tailor-made for monitoring final wastewater effluent and discharges to meet TOC requirement in water regulations. Being regulatory compliant will save you significant penalty costs while protecting the local environment.

### Save with low ownership costs

Requiring you to replace the pump tube and calibrate only twice a year, the Hach BioTector B3500e provides low operating expenses.

### Worry-free TOC with smart design

The B3500e comes with a built in self-cleaning sample tube and reactor. This enables the B3500e to deliver trustworthy results even if your water contains some level of fat, oil, greases and sludge or has moderate pH swings.

### Information you can rely on

Using BioTector's internationally proven and patented Two Stage Advanced Oxidation technology, the B3500e delivers maximum uptime, reliability and accuracy.

### Access your results from everywhere

With the B3500e TOC results can be viewed at your desk, your home, or while you are on the move with the BioTector Network Control Unit remote access.



## Order Information

### Instruments

- BEAAAA152AAA2** Hach BioTector B3500e Online TOC analyzer, 0-250 ppm, 1 stream, grab sample, cleaning, 115 V AC
- BEABAA152AAA2** Hach BioTector B3500e Online TOC analyzer, 0-250 ppm with 0-1000 ppm range extension, 1 stream, grab sample, cleaning, 115 V AC
- BEAAAA152AAB2** Hach BioTector B3500e Online TOC analyzer, 0-250 ppm, 1 stream, grab sample, cleaning, sample sensor, 115 V AC
- BEABAA152AAB2** Hach BioTector B3500e Online TOC analyzer, 0-250 ppm with 0-1000 ppm range extension, 1 stream, grab sample, cleaning, sample sensor, 115 V AC

*There are additional options available. Please contact Hach for more details.*

### Accessories

- 10-SMC-001** Air supply filter pack
- 19-COM-160** BioTector Compressor 115 V / 60 Hz
- 19-COM-250** BioTector Compressor 230 V / 50 Hz

### Service Kit

- 19-KIT-130** B3500e 6 month service kit

*Part numbers may vary by country.*

### Learn More



## Technical Data\*

<b>Parameter</b>	Direct measurement of Total Organic Carbon, Total Inorganic Carbon
<b>Range</b>	Chemical Oxygen Demand, Biological Oxygen Demand via correlation 0 - 250 mg/L C, 0 - 1000 mg/L C
<b>Measurement Method</b>	Infrared measurement of CO <sub>2</sub> after oxidation (DIN EN 1484:1997-08, ISO 8245:1999-03, EPA 415.1)
<b>Oxidation Method</b>	Patented Two-Stage Advanced Oxidation Process (TSAO) using Hydroxyl Radicals
<b>Communication</b>	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)
<b>Cycle Time</b>	Typically 7 minutes 30 seconds
<b>Particle Size</b>	Up to 100 µm
<b>Automatic cleaning</b>	Yes
<b>Sample Inlet Temperature</b>	2 - 60 °C (36 - 140 °F)
<b>Service Interval</b>	6 month service intervals
<b>Power Requirements</b>	115 - 230 VAC; 50/60 Hz
<b>Dimensions (H x W x D)</b>	750 x 500 x 320 mm (29.5 x 19.7 x 12.6 in.)
<b>Weight</b>	46 kg (101.4 lb) (enclosure weight may change depending on system optional features)

*\*Subject to change without notice.*

# BioTector B3500ul Online TOC Analyzer

## Precise, low-level TOC measurement that you can trust

Changes in water quality for ultra pure applications are disruptive to plant operations. Accurate, on-line analysis is important to protect critical equipment that depends on ultra pure water resources. Leading manufacturers know that it is critical to analyse for contaminants precisely at ppb levels to maintain water quality. Reliability and effective oxidation of large samples ensures that manufacturers can trust the results reported by the BioTector B3500ul analyzer. With a full picture of organic contaminants in critical water applications manufacturers make water treatment decisions more efficiently.

The Hach® BioTector B3500ul provides reliable and accurate TOC analysis at ppb levels for ultrapure water applications. The patented two stage advanced oxidation technology behind the BioTector thoroughly, and reliably oxidizes samples for valuable real-time water analysis.

### Maximum uptime for your process

With uptime certified at 99.86% and two short, scheduled maintenance events per year, you will not be missing critical process information when you need it the most.

### Instant and long term savings

Reduce the costs related to water re-treatment, and save on operational expenses. On-line TOC analysis enables maximum water reuse and keeps critical water resources at their best to maximize the lifetime of high-value capital equipment.



#### Technical Data\*

Parameter	TOC, TIC, TC, VOC, after correlation COD, BOD
Measurement Method	Infrared measurement of CO <sub>2</sub> after oxidation
Oxidation Method	Patented Two-Stage Advanced Oxidation Process (TSAO) using Hydroxyl Radicals
Range	0 - 5000 µg/L C
Accuracy	±2 % of reading or ±15 µg/L C, whichever is greater
Limit of quantification	80 µg/L
Calibration	For best performance ultra-pure water (18.2 MΩ*cm, < 5 µg/L TOC) is needed for calibration.
Interferences	TIC Interference: At 500 µg/L TIC (as bicarbonate), 2% carryover into TOC may occur.
pH Range	pH 1-12
Cycle Time	TOC from 5 minutes, depending on application
Communication	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)  Except for Zone 1 certification then Modbus RTU, Modbus TCP/IP & Modbus TCP/IP Redundant is available
EExp / Hazardous Location	Certification options are available to European Standards, (ATEX Zone 1, Zone 2), North American Standards (Class I Division 2) and IECEx Zone 1
Sample Inlet Temperature	2 - 60 °C (36 - 140 °F)
Particle Size	Up to 100 µm
Power Requirements	115 - 230 VAC; 50/60 Hz
Service Interval	6 months service intervals
Dimensions (H x W x D)	1000 x 500 x 320 mm (39.4 x 19.7 x 12.6 in.)
Weight	50 kg (110.2 lb)

*\*Subject to change without notice.*

#### Order Information\*

##### Instruments

**B5EBAA152EAC2** Hach BioTector B3500ul TOC analyzer, 0 - 5000 µg/L C, 1 stream, grab sample, 115 V AC

**B5EBAA152EAF2** Hach BioTector B3500ul TOC analyzer, 0 - 5000 µg/L C, 2 streams, grab sample, 115 V AC

*There are additional options available. Please contact Hach for more details.*

##### Accessories

**19-COM-160** BioTector Compressor 115 V / 60 Hz

**19-COM-250** BioTector Compressor 230 V / 50 Hz

**10-SMC-001** Air supply filter pack

**19-KIT-123** Six months spare part kit for BioTector B3500

**19-BAS-031** BioTector sample overflow chamber

##### Reagents

**2985562** BioTector base reagent 1.2 N sodium hydroxide

**25255061** BioTector acid reagent 1.8 N sulfuric acid containing 80 mg/L Mn

*Part numbers may vary by country.*

Learn More



# BioTector B7000i Online TOC Analyzer

## The ideal online TOC Analyzer to achieve precise results even for your most challenging applications

A patented self-cleaning oxidation technology enables the B7000i analyzer to easily handle difficult samples and significantly reduce the maintenance schedule and costs associated with traditional on-line measurement. This TOC analyzer eliminates build up issues from salts, particulates, fats, oils and greases that lead to drift and high maintenance.

With reliable, continuous environmental monitoring and real-time process control, BioTector analyzers allow plants to optimize processes and reduce product loss.



### Worry-free TOC with smart design

The B7000i comes with a built in self-cleaning sample line and reactor. This enables the B7000i to deliver trustworthy results even if your water contains high levels of fats, oils, greases, sludge and particulates or has pH swings.

### Easy handling

All B7000i come with unique oversized tubing which eliminated the need for filtration and you can be sure to have a fully representative sample. The special tubing also prevents clogging as well as sample contamination.

### Superior reliability

Using BioTector's internationally proven and patented Two Stage Advanced Oxidation technology the B7000i delivers maximum reliability, accuracy and availability with a MCert certified uptime of 99.86%. In addition no calibration or maintenance is required between 6-month service intervals.

### Flexible field of application

Depending on the type of application, the instrument can operate across a very wide measuring range. The B7000i analyzer also has multistreaming capabilities with up to 6 process streams possible. Additionally, it can be adapted for indoor or outdoor use.

### Low cost of ownership

Installing a B7000i provides cost savings through optimizing processes by decreasing chemical dosing, waste reduction, reducing samples processes and lowering overall plant operation costs.

### Technical Data\*

Parameter	TOC, TIC, TC, VOC, after correlation COD, BOD, TOG
Measurement Method	Infrared measurement of CO <sub>2</sub> after oxidation (DIN EN 1484:1997-08, ISO 8245:1999-03, EPA 415.1)
Oxidation Method	Patented Two-Stage Advanced Oxidation Process using Hydroxyl Radicals.
Range	0 - 20000 mg/L C
Cycle Time	From 6.5 minutes, depending on range and application
Permissible Chloride Range	Up to 30%
Communication	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)  Except for Zone 1 certification then Modbus RTU, Modbus TCP/IP & Modbus TCP/IP Redundant is available
EExp / Hazardous Location	Certification options are available to European Standards, (ATEX Zone 1, Zone 2), North American Standards (Class I Division 2) and IECEx Zone 1
Sample Inlet Temperature	2 - 60 °C (36 - 140 °F)
Particle Size	Up to 2 mm, soft particulates
Power Requirements	115 - 230 VAC; 50/60 Hz
Service Interval	6 months service intervals
Dimensions (H x W x D)	1250 x 750 x 320 mm (49.2 x 29.5 x 12.6 in.) 90 - 120 kg (198.4 - 264.6 lb)
Weight	Enclosure weight may change depending on system optional features.

\*Subject to change without notice.

### Order Information

#### Instruments

**B7AAAA052AABAA2** Hach BioTector B7000i Online TOC analyzer, 0 - 10000 mg/L C, 1 channel, 115 V AC

**B7ABAA052AABAA2** Hach BioTector B7000i Online TOC analyzer, 0 - 20000 mg/L C, 1 channel, 115 V AC

*There are additional options available. Please contact Hach for more details.*

#### Accessories

**19-COM-160** BioTector Compressor 115 V / 60 Hz

**19-COM-250** BioTector Compressor 230 V / 50 Hz

**10-SMC-001** Air supply filter pack

**19-KIT-131** B7000i 6 month service kit

#### Reagents

**25255061** BioTector acid reagent 1.8 N sulfuric acid containing 80 mg/L Mn

**2985562** BioTector base reagent 1.2 N sodium hydroxide

*Part numbers may vary by country.*

### Learn More



# BioTector B7000i Dairy Online TOC Analyzer



## Maximize your profits by minimizing your product loss.

The Hach® BioTector B7000i Dairy Online TOC Analyzer is the most innovative, maintenance-free TOC analyzer on the market, designed specifically to detect product loss, decrease and conserve water usage and improve production processes.

Industry studies show that lost product can be reduced by over 15% in Dairy Processing Plants by using accurate, reliable and continuous TOC measurement. Further savings of up to 40% can be made in the operating cost of the treatment plant by reducing energy and water consumption.

## Reliable measurements, every time

With a patented Two Stage Advanced Oxidation Technology system, a sample injection unit and a self-cleaning sample reactor, as well as tubing designed specifically for dairy applications, the B7000i Dairy analyzer provides you with maximum reliability and uptime so you will be certain to get the measurements you need.

## Minimum maintenance, even in the harshest conditions

The B7000i Dairy analyzer comes with self-cleaning technology which limits necessary maintenance to only twice a year, with no calibration requirements between services. Even in the harsh dairy environment, it will handle samples with soft particles up to 2 mm in diameter, including samples with fat, oil, greases, sludge and salts.

## One instrument for multiple streams

A single B7000i Dairy TOC analyzer gives you the ability to monitor up to two streams with now added Flow input to enable product management to see actual real time product loss on the BioTector display.

### Technical Data\*

Parameter	TOC, TIC, TC, VOC, after correlation COD, BOD
Measurement Method	Infrared measurement of CO <sub>2</sub> after oxidation
Oxidation Method	Patented Two-Stage Advanced Oxidation Process using Hydroxyl Radicals
Range	0 - 20000 mg/L C
Cycle Time	From 6.5 minutes, depending on application
Permissible Chloride Range	Up to 30%
Communication	Modbus RTU, Modbus TCP/IP & Profibus
Sample Inlet Temperature	2 - 60 °C (36 - 140 °F)
Particle Size	Up to 2 mm, soft particulates
Power Requirements	115 - 230 VAC; 50/60 Hz
Service Interval	6 months service intervals
Dimensions (H x W x D)	1250 x 750 x 320 mm (49.2 x 29.5 x 12.6 in.)
Weight	90 - 120 kg (198.4 - 264.6 lb) Enclosure weight may change depending on system optional features.

*\*Subject to change without notice.*

### Order Information

#### Instruments

**BDAAA052MABAA4** Hach BioTector B7000i Dairy Online TOC Analyzer, 0 - 20000 mg/L C, 1 channel, 115 V AC

**BDAAA052NABAA4** Hach BioTector B7000i Dairy Online TOC Analyzer, 0 - 20000 mg/L C, 2 channels, 115 V AC

*There are additional options available. Please contact Hach for more details.*

#### Accessories

**19-COM-160** BioTector Compressor 115 V / 60 Hz

**19-COM-250** BioTector Compressor 230 V / 50 Hz

**10-SMC-001** Air supply filter pack

**19-KIT-132** B7000i Dairy 6 month service kit

#### Reagents

**2985562** BioTector base reagent 1.2 N sodium hydroxide

**25255061** BioTector acid reagent 1.8 N sulfuric acid containing 80 mg/L Mn

*Part numbers may vary by country.*

Learn More





# BioTector B7000 Online TOC/TN/TP Analyzer

## A single analyzer for Carbon contamination and Nitrogen/Phosphorus nutrient levels in water

### Improve wastewater treatment process

Capture changes in water quality with a direct analysis of Total Organic Carbon (contamination), Total Nitrogen and Total Phosphorus in the most challenging samples.

### Reduce the environmental footprint

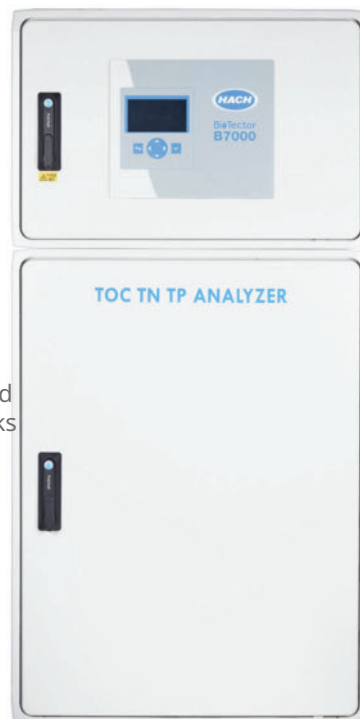
Comprehensive information about your incoming sample composition enables improved process control. Knowing TOC + TN and TP allows you to decrease utilities usage and related costs. Optimized processes will reduce effluent environmental impact and minimize the risks of fines and reputation damage.

### Protect your WWTP and WWRP

TOC is commonly used as a fast, reliable water analysis metric for water quality. TOC levels are often correlated to lagging water quality metrics such as Chemical Oxygen Demand (COD) and Biochemical Oxygen Demand (BOD).

### Superior reliability

With a certified 99.86% uptime critical process information is available when you need it most. Maintenance in most applications is done 2x per year.



## Order Information

### Analyzers

<b>B4QDDF052AECAE2</b>	B7000 TOC/TN/TP Analyzer, 1 channel, 115 V, 0 - 25 mg/L
<b>B4QEDF052AECAE2</b>	B7000 TOC/TN/TP Analyzer, 1 channel, 115 V, 0 - 50 mg/L
<b>B4QFDF052AECAE2</b>	B7000 TOC/TN/TP Analyzer, 1 channel, 115 V, 0 - 100 mg/L
<b>B4QGDF052AECAE2</b>	B7000 TOC/TN/TP Analyzer, 1 channel, 115 V, 0 - 500 mg/L
<b>B4QHDF052AECAE2</b>	B7000 TOC/TN/TP Analyzer, 1 channel, 115 V, 0 - 1000 mg/L
<b>B4QKDF052AECAE2</b>	B7000 TOC/TN/TP Analyzer, 1 channel, 115 V, 0 - 10,000 mg/L

There are additional options available. Please contact Hach for more details.

### Accessories

<b>12-AIR-001</b>	Oxygen Concentrator, 115 V, 60 Hz, with compressor
<b>19-OGS-101</b>	Oxygen Concentrator, 115 V, 60 Hz, without compressor
<b>10-SMC-001</b>	Air supply filter pack
<b>19-KIT-119</b>	BioTector TOC/TN/TP Dual Cell 6 month Service Kit
<b>19-KIT-110</b>	KNF300 pump 6 month Service Kit
<b>19-KIT-120</b>	BioTector TOC/TN/TP Dual Cell 12 month Service Kit
<b>19-KIT-111</b>	KNF300 Pump 12 month Service Kit

### Reagents

<b>2985462</b>	BioTector acid reagent with catalyst
<b>2985562</b>	BioTector base reagent 1.2 N sodium hydroxide
<b>2985662</b>	BioTector TN cleaning solution, 18.9 L
<b>2986162</b>	BioTector Total Phosphorus reagent, 18.9 L
<b>27362</b>	Deionized water, 18.9 L

Part numbers may vary by country.

### Learn More



## Technical Data\*

<b>Parameter</b>	Direct measurement of TOC, TIC, TC, TN, TP; COD, BOD via correlation; VOC via calculation
<b>Measurement Method</b>	TOC: NDIR measurement of CO <sub>2</sub> after oxidation TN: direct photometric analysis of Nitrate after oxidation TP: colorimetric analysis of Phosphate with standard Vanadomolybdophosphoric acid method after oxidation
<b>Oxidation Method</b>	Patented Two-Stage Advanced Oxidation Process (TSAO) using Hydroxyl Radicals
<b>Range</b>	0 - 10000 mg/L C/N/P
<b>Cycle Time</b>	From 10 minutes, depending on range and application
<b>Permissible Chloride Range</b>	Up to 30%
<b>Communication</b>	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)
<b>EExp / Hazardous Location</b>	Certification options are available to European Standards (ATEX Zone 2 - maximum T3 for TP analyzer) and North American Standards (Class I Division 2)
<b>Sample Inlet Temperature</b>	2 - 60 °C (36 - 140 °F)
<b>Particle Size</b>	Up to 2 mm, soft particulates
<b>Power Requirements</b>	115 - 230 VAC; 50/60 Hz
<b>Service Interval</b>	6 months service intervals
<b>Dimensions (H x W x D)</b>	1500 x 750 x 320 mm (59.1 x 29.5 x 12.6 in.)
<b>Weight</b>	90 - 120 kg (198.4 - 264.6 lb) Enclosure weight may change depending on system optional features.

\*Subject to change without notice.

# Filtrax Sample Filtration System



The Filtrax and Filtrax eco Sample Filtration Systems continually extract samples directly from process effluent and pull the water through ultra-filtration membranes (0.15 µm) that are immersed in the aeration basin or primary settling tank.

Once filtered, the samples can be analyzed with one of Hach's analyzers, such as the Amtax sc or Phosphax sc, when used in flow through installations. The control unit of both the Filtrax and the Filtrax eco can be placed outdoor in any climate and is virtually maintenance free, all tubing is completely accessible and easy to replace.

A programmable alarm relay alerts operators to inspect the system when flow decreases, and a second relay can shut the unit down if flow decreases further.

## Technical Data\*

Sample Flow Rate	Approx. 900 mL/h
Sample Temperature	5 - 40 °C (41 - 104 °F)
Ambient Temperature	-20 - 40 °C (-4 - 104 °F)
Sample Suction Hose	5 m (heated)
Sample Delivery Hose Options	2 m (heated or unheated), 10 m (heated), or 20 m (heated)
Enclosure Rating	IP55
Power Requirements	115 VAC/230 VAC; 50/60 Hz; 6 A
Dimensions (H x W x D)	Control unit: 510 x 370 x 220 mm (20 x 14.6 x 8.7 in.)
	Module carrier: 500 x 340 x 92 mm (19.7 x 13.4 x 3.6 in.)
Weight	Up to 9 kg (20 lb) depending on delivery hose option

*\*Subject to change without notice.*

## Order Information

- 5738900** Filtrax sample filtration system, 2 m unheated hose, 115 VAC
- 5739200** Filtrax sample filtration system, 2 m heated hose, 115 VAC
- 5739000** Filtrax sample filtration system, 10 m heated hose, 115 VAC
- 5739100** Filtrax sample filtration system, 20 m heated hose, 115 VAC

*The Hach Filtrax Sample Filtration System includes: module holder, control unit, sample delivery hose, manual*

*Part numbers may vary by country.*

Learn More



# FX610 / FX620

## Sample Filtration Systems

The FX610 and FX620 are lightweight, sample filtration systems for the NH6000sc ammonia analyzer with a sample pump and compressor directly integrated into the analyzer. The filter system collects a sample from the basin and the integrated sample pump moves the sample to the measuring chamber.

The FX610 and FX620 offer lower user maintenance, each with one membrane that requires cleaning only every 3 months and a large diameter air supply tube. The FX620 has an air bubble cleaning module below the filter system to decrease the collection of solids on the filter membrane.



### Order Information

<b>LXV464.97.11021</b>	FX610 Sample Filtration System, 5 m heated hose, 115 VAC
<b>LXV464.97.12021</b>	FX610 Sample Filtration System, 10 m heated hose, 115 VAC
<b>LXV464.97.21021</b>	FX620 Sample Filtration System, rough samples, 5 m heated hose, 115 VAC
<b>LXV464.97.22021</b>	FX620 Sample Filtration System, rough samples, 10 m heated hose, 115 VAC

*Part numbers may vary by country.*

### Technical Data\*

<b>Dimensions (H x W x D)</b>	FX610: 348 x 287 x 81 mm (13.7 x 11.3 x 3.19 in.) FX620: 424 x 408 x 86 mm (16.6 x 16.1 x 3.4 in.)
<b>Weight</b>	FX610: 2.2 kg (4.9 lb) with filter module FX620: 3.5 kg (7.7 lb) with filter module
<b>Sample Volume</b>	Delivers a sample volume of ~1 L/h
<b>Hose Length</b>	5 m or 10 m heated sample hose
<b>Maintenance Requirements</b>	Approximately 30 minutes/3 months in standard municipal wastewater aeration basin applications
<b>Sample Temperature</b>	4 - 40 °C (39.2 - 104 °F) in basin
<b>Ambient Temperature</b>	-20 - 45 °C (-4 - 113 °F)
<b>pH Range</b>	5 - 9 pH
<b>Power Requirements</b>	115 - 230 VAC; 50/60 Hz, supplied by analyzer
<b>Certifications</b>	CE, UKCA, CMIM, FCC, ISSED, certified to UL and CSA safety standards by TÜV

*\*Subject to change without notice.*

*The NH6000sc can be retrofit with the integrated FX610 or FX620 filtration systems. Contact Hach for more information.*

## EZ Series Online Analyzers and Sample Preconditioning Units



The Hach EZ Series covers a unique range of parameters on a single analyzer platform. Five measurement technologies (colorimetry, titration, ion-selective electrode, voltammetry, and chemiluminescence) allow for a wide selection of measuring ranges and applications.

All instruments come in the same rugged mainframe with a compact footprint. Their common user interface on industrial panel PCs is easy to use and keeps training efforts low. Administrator access and activated/deactivated menu keys provide security. Various analog and digital communication outputs support easy integration into your systems. Discontinuous analysis at programmable intervals assures low reagent consumption and eliminates cross-contamination.

### EZ Series Analyzer Models:

**EZ1000 Series** - online colorimetric analyzers

**EZ2000 Series** - online colorimetric analyzers with digestion

**EZ3000 Series** - online ion-selective (ISE) analyzers

**EZ4000 Series** - online titrimetric analyzers

**EZ5000 Series** - online titrimetric analyzers, multiparameter

**EZ6000 Series** - online voltammetry analyzers for heavy/trace metal analysis

**EZ7000 Series** - online analyzers for industrial and sum parameter applications

EZ Series analyzers share wear and spare parts thus requesting less inventory. Similar maintenance steps again bring down training efforts. Optional Hach service agreements protect your investment and help ensure compliance.

All relevant parameter groups in water analysis are covered by the EZ Series: Nutrients, Organics, Inorganics, Metals / Trace Metals

EZ Series Analyzers can be combined with sample preconditioning units for external dilution or filtration to meet the requirements of the individual application. All systems are designed for fully automatic operation and require virtually no human intervention.

### EZ Series Sample Preconditioning Units:

**EZ9010** - universal self-cleaning filtration system, for immersion

**EZ9020** - universal self-cleaning filtration system, fast loop

**EZ9110** - heavy-duty filtration system

**EZ9120** - heavy-duty filtration system for sludge applications (to be combined with EZ7900 toxicity analyzer)

**EZ9130** - heavy-duty filtration system for anaerobic applications (to be combined with EZ7200 VFA analyzer)

**EZ9200** - microfiltration system, for immersion

**EZ9250** - microfiltration system, for bypass

**EZ9750** - external dilution unit

**Learn More**





## Technical Data\*

	EZ1000 Series	EZ2000 Series	EZ3000 Series	EZ4000 Series	EZ5000 Series	EZ6000 Series	EZ7000 Series
	Colorimetric	Colorimetric with digestion	Ion-Selective (ISE)	Titrimetric	Titrimetric, multiparameter	Voltammetry	Industrial and sum-parameter applications
Alkalinity				•	•		
Aluminum	•	•					
Ammonium	•			•			
Arsenic						•	
ATP							•
Boron	•						
Chloride	•		•	•			
Chromium	•	•					
Color Pt-Co	•						
Copper	•	•					
Cyanide	•	•					
Fluoride			•				
Hardness	•			•	•		
Hydrogen Peroxide	•						
Iron	•	•					
Manganese	•	•					
Nickel	•	•					
Nitrate	•						•
Nitrite	•						•
Phenol	•						
Orthophosphate	•						•
Silica	•						
Sodium			•				
Sulfate	•						
Sulfide	•		•	•			
Total Nitrogen (TN)							•
Total Phosphorus (TP)							•
Toxicity							•
Volatile Fatty Acids (VFA)							•
Zinc	•						

\*Subject to change without notice.

## Order Information

Parameter	Model	Parameter	Model
Alkalinity	EZ4003/EZ4004/EZ5001	Manganese	EZ1025sc/EZ2003/EZ2303
Aluminum	EZ1001/EZ2000/EZ2300	Nickel	EZ1027/EZ2004
Ammonium	EZ1102/EZ4005	Nitrate	EZ1029
Arsenic	EZ6000/EZ6001/EZ6200	Nitrate, Nitrite	EZ1301
ATP	EZ7300	Nitrite	EZ1028
Boron	EZ1004	Phenol	EZ1030
Chloride	EZ1005/EZ3003/EZ3004/EZ3005/ EZ3503/EZ3504/EZ3505/EZ4006	Orthophosphate (PO <sub>4</sub> -P)	EZ1031/EZ1032
Chromium	EZ1009/EZ2001/EZ2301/EZ2400	Silica	EZ1035
Color Pt-Co	EZ1008	Sodium	EZ3015/EZ3016
Copper	EZ1010/EZ1011/EZ2002/EZ2302	Sulfate	EZ1036
Cyanide	EZ1012/EZ2500	Sulfide	EZ1037/EZ3018/EZ4032
Fluoride	EZ3007/EZ3507/EZ3508	Total Nitrogen (TN)	EZ77xx
Hardness	EZ1016sc/EZ1017/EZ4041/EZ4043/ EZ4044/EZ5002	Total Nitrogen (TN), Nitrate, Nitrite	EZ7750
Hardness, Alkalinity	EZ5003/EZ5004/EZ5005/EZ5006/ EZ5010/EZ5011	Total Nitrogen (TN), Total Phosphorus (TP)	EZ76xx
Hydrogen Peroxide	EZ1022	Total Phosphorus (TP)	EZ782x
Iron	EZ1024/EZ2005/EZ2306	Total Phosphorus (TP), Orthophosphate (PO <sub>4</sub> -P)	EZ786x
		Toxicity; respiration rate	EZ7900
		Volatile fatty acids (VFAs), total alkalinity	EZ725x
		Zinc	EZ1040

# EZ Series Reagents



Hach EZ reagents are ready-to use with EZ Series Online Analyzers. Since there is no additional preparation needed this eliminates an additional error source when using the EZ instruments and reagents system.

## Order Information

Prod. No.	Description	Prod. No.	Description
14049	Iron Standard Solution, 10 mg/L	APPC1025-04	EZ1025 Manganese EDTA Solution
17149	Phosphate Standard Solution, 50 mg/L	APPC1025KTO	Reagent Kit for EZ1025 Manganese Analyzer
23249	Fluoride Standard Solution, 100 mg/L, 500 mL	APPC1031-01	EZ1031 Phosphate Color Solution
35949	Fluoride Standard Solution, 10 mg/L, 500 mL	APPC3007-01	EZ3007 Fluoride Buffer Solution (TISAB)
1279142	Manganese Standard Solution, 1000 mg/L	APPC3507-01	EZ3507 Fluoride Buffer Solution (TISAB)
2305442	Calcium Standard Solution, 10 mg/L	APPC4004-01	EZ4003/EZ4004 Total Alkalinity Acid Solution, 0.025 N HCl
2826253	Alkalinity Standard Solution, 500 mg/L	APPC4004-02	EZ4004 Total Alkalinity Acid Solution, 0.05 N HCl (25-1250 mg/L)
APPC1016-01	EZ1016 Total Hardness Acid Solution	APPC4004-03	EZ4004 Total Alkalinity Acid Solution, 0.1 N HCl (50-2500 mg/L)
APPC1016-02	EZ1016 Total Hardness Buffer Solution	APPC4004-04	EZ4004 Total Alkalinity Acid Solution, 0.2 N HCl (100-5000 mg/L)
APPC1016-03	EZ1016 Total Hardness Color Solution	APPC4041-01	EZ4041 Total Hardness Acid Solution
APPC1016-04	EZ1016 Total Hardness EDTA Solution	APPC4041-02	EZ4041 Total Hardness Buffer Solution
APPC1016KTO	Reagent Kit for EZ1016 Total Hardness Analyzer	APPC4041-03	EZ4041 Total Hardness Color Solution
APPC1022-01	EZ1022 H <sub>2</sub> O <sub>2</sub> Buffer Solution	APPC4041-04	EZ4041 Total Hardness EDTA Solution, 0.005 M
APPC1022-02	EZ1022 H <sub>2</sub> O <sub>2</sub> Color Solution	APPC4041-05	EZ4041 Total Hardness EDTA Solution, 0.01 M
APPC1022-DPD	EZ1022 H <sub>2</sub> O <sub>2</sub> DPD Powder	APPC4041-06	EZ4041 Total Hardness EDTA Solution, 0.02 M
APPC1022KTO	Reagent Kit for EZ1022 H <sub>2</sub> O <sub>2</sub> Analyzer	APPC4041KTOL	Reagent Kit for EZ4041 Total Hardness Analyzer (10-250 mg/L)
APPC1024-01	EZ1024 Iron Buffer Solution	APPC4041KTOM	Reagent Kit for EZ4041 Total Hardness Analyzer (50-500 mg/L)
APPC1024-02	EZ1024 Iron Color TPTZ Solution	APPC4041KTOS	Reagent Kit for EZ4041 Total Hardness Analyzer (100-1000 mg/L)
APPC1024-03	EZ1024 Iron Reducing Reagent	APPC4043KTO	Reagent Kit for EZ4043 Total Hardness Analyzer (0.25-10 mg/L)
APPC1025-01	EZ1025 Manganese Buffer Solution	APPC4043-04	EZ4043 Total Hardness EDTA Solution, 0.005 N
APPC1025-02	EZ1025 Manganese Color Solution	4457649	Calcium Standard Solution, 100 mg/L, 500 mL
APPC1025-03	EZ1025 Manganese Reducing Reagent	APPC1022KTO4L	Reagent Kit for EZ1022 H <sub>2</sub> O <sub>2</sub> Analyzer, 4 L (2 bottles of each reagent)

## Order Information

Prod. No.	Description	Prod. No.	Description
<b>APPC1024KTO</b>	Reagent Kit for EZ1024 Iron Analyzer	<b>APPC76NP-03</b>	EZ7600 TN/TP Series NaOH Solution
<b>APPC1031KTO</b>	Reagent Kit for EZ1031 Phosphate Analyzer	<b>APPC76NP-04</b>	EZ7600 TN/TP Series HCl Solution
<b>APPC3007KTO</b>	Reagent Kit for EZ3007 Fluoride Analyzer	<b>APPC76NP-05</b>	EZ7600 TN/TP Series Reducing Reagent
<b>APPC3507KTO</b>	Reagent Kit for EZ3507 Fluoride Analyzer	<b>APPC76NP-06</b>	EZ7600 TN/TP Series Reference 1 Solution
<b>APPC4004KTOL</b>	Reagent Kit for EZ4003 & EZ4004 Total Alkalinity Analyzer (10-500 mg/L)	<b>APPC2003KTO</b>	Reagent Kit for EZ2003 Total Manganese Analyzer
<b>APPC7621-07</b>	EZ7621 TN/TP Reference Solution 2, 1 L	<b>APPC2003-05</b>	EZ2003 Total Manganese Nitric Solution
<b>APPC7632-07</b>	EZ7632 TN/TP Reference Solution 2, 1 L	<b>APPC1001-01</b>	EZ1001 Aluminium Buffer Solution
<b>APPC7641-07</b>	EZ7641 TN/TP Reference Solution 2, 1 L	<b>APPC1001-02A</b>	EZ1001 Aluminium Color Indicator
<b>APPC7642-07</b>	EZ7642 TN/TP Reference Solution 2, 1 L	<b>APPC1001-03A</b>	EZ1001 Aluminium Mixed Reagent
<b>APPC7652-07</b>	EZ7652 TN/TP Reference Solution 2, 1 L	<b>APPC1001-03B</b>	EZ1001 Aluminium Ascorbic Acid
<b>APPC7653-07</b>	EZ7653 TN/TP Reference Solution 2, 1 L	<b>APPC1001KTO</b>	Reagent Kit for EZ1001 Aluminium Analyzer
<b>APPC7654-07</b>	EZ7654 TN/TP Reference Solution 2, 1 L	<b>APPC100401</b>	EZ1004 Boron Buffer Solution
<b>APPC7663-07</b>	EZ7663 TN/TP Reference Solution 2, 1 L	<b>APPC100402</b>	EZ1004 Boron Glycerol Solution
<b>APPC7664-07</b>	EZ7664 TN/TP Reference Solution 2, 1 L	<b>APPC100402A</b>	EZ1004 Boron Color Indicator
<b>APPC7665-07</b>	EZ7665 TN/TP Reference Solution 2, 1 L	<b>APPC1004KTO</b>	Reagent Kit for EZ1004 Boron Analyzer
<b>APPC7675-07</b>	EZ7675 TN/TP Reference Solution 2, 1 L	<b>1417442</b>	Aluminium Standard Solution, 100 mg/L
<b>APPC7676-07</b>	EZ7676 TN/TP Reference Solution 2, 1 L	<b>2305842</b>	Aluminium Standard Solution, 10 mg/L, 100 mL
<b>APPC7685-07</b>	EZ7685 TN/TP Reference Solution 2, 1 L	<b>APPC1036-01</b>	EZ1036 Sulfate Buffer Solution
<b>APPC7686-07</b>	EZ7686 TN/TP Reference Solution 2, 1 L	<b>APPC1036-02</b>	EZ1036 Sulfate Barium Chloride Solution
<b>APPC76NP-01</b>	EZ7600 TN/TP Series Colour Solution	<b>APPC1036-03</b>	EZ1036 Sulfate EDTA Solution
<b>APPC76NP-02</b>	EZ7600 TN/TP Series Persulfate Solution	<b>APPC1036KTO</b>	Reagent Kit for EZ1036 Sulfate Analyser

*\*Part numbers may vary by country.*



## Hach Single, Dual, and Multi Parameter Panels

### SAVE TIME

**Pre-assembled for simplified installation, up in minutes not days**

### SAVE MONEY

**No engineering costs to design**

### LONG-TERM SUPPORT

**Entire panel and components all from one vendor**

#### Single Parameter Monitoring Panel (SPMP)

Our preassembled, ready-to-use Panels streamline the process of purchasing and startup. Available with SC4500 controller and your choice of CL17sc or TU5300sc EPA.

#### Dual Parameter Monitoring Panel (DPMP)

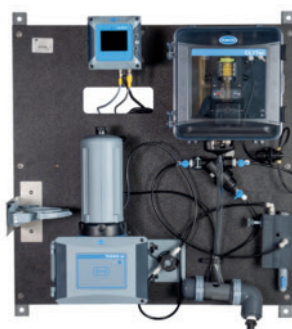
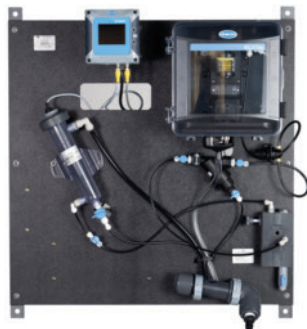
Hach Panels provide you with an expertly designed solution that makes installation straightforward and user friendly. Our most popular pairings of SC4500 with a Differential pH Probe and your choice of CL17sc or TU5300 EPA.

#### Dual Parameter Monitoring Panels Continued (Phosphax sc)

The Phosphax Panel combines the Phosphax sc, Filtrax, and SC1000 Controller into one convenient, pre-engineered, out-of-the-box solution for both indoor and outdoor use. It ensures compliance with evolving nutrient regulations, making it a complete package for efficient and effective phosphorus management.

#### Multi Parameter Panels (WDMP & WQMP)

Hach Multi Parameter Panels provide the same benefits of our Single and Dual Parameter Panels while saving you more time and more money. Several combinations of vital parameters with up to six sensors in multiple options to fit your unique needs.



**Learn More**







# Samplers

AS950 Automatic Samplers Overview  
All Weather & Refrigerated  
Portable



*Be Right™*

# AS950 Automatic Samplers



## Sampling has never been this easy.

Hach AS950 Automatic Samplers collect and store representative water samples for lab analysis. AS950 samplers are available in three bases: portable, indoor refrigerated, and all-weather refrigerated and are compatible with bottle sets of varying size, quantity, and material.

The AS950 is configurable to meet all sampling needs by combining a controller, base, bottle set, accessories and sampling program features.

Every AS950 is equipped with a peristaltic pump with spring-mounted rollers providing long tubing life and a liquid detect sensor for best-in-class volume accuracy, a USB connection and an auxiliary port for pulse or 4-20 inputs. Factory-installed options include sensor ports for Hach water quality, level or flow, a port for Modbus RS485 communication or rain sensor and an alternate non-contact liquid detect sensor.

Finally, inputs and outputs can be extended with the IO9001 for a single high-voltage relay or the IO9004 for a comprehensive set of analog and digital outputs and relays.

### Easiest and most intuitive operation

The large full color display and intuitive programming give you access to all your programmable criteria on a single screen - eliminating scrolling through menus and supporting error-free operation.

### Most convenient data transfer and programming available

The AS950 is the only sampler that utilizes a USB drive to upload and download data and copy programs from one sampler to another.

### Confidence in your sampling process

The program status screen instantly communicates alarms, missed samples and program progress for quick and easy troubleshooting.

### Resists corrosion

The All-Weather Refrigerated (AWR) sampler base is designed to endure humid and highly corrosive environments, minimizing damage caused by corrosive gases, rodents, and standing water to guarantee environmental integrity.

### Accurate and consistent sample preservations

The custom-designed air-sensing thermostat controls temperature in accordance with USEPA and international guidelines, preserving samples regardless of outside temperatures and conditions.

**Technical Data\*****Sampling Features (all Samplers)**

<b>Programs</b>	Dual Programs: Up to 2 sample programs can be run sequentially, in parallel, or according to day of week scheduling; enabling a single sampler to function like multiple samplers
<b>Sampling Mode</b>	Pacing: Time Weighted, Flow Weighted, Time Table, Flow Table, Event Distrib.: Single bottle composite, multi-bottle composite, multi-bottle discrete, bottles per sample, samples per bottle or a combination of bottles per sample and samples per bottle
<b>Flow Pacing</b>	Sample Trigger with Pulse or 4-20 mA when using optional I/O accessory
<b>Operating Mode</b>	Continuous or non-continuous
<b>Status Messages</b>	Communicates what program is running, if there are any missed samples, when the next sample will be taken, how many samples remain, number of logged channels, time of last measurement, memory available, number of active channels, if alarms were triggered, when alarms were triggered, active sensors and cabinet temperature
<b>Alarm</b>	Configurable alarms that show on status screen and are recorded in diagnostics alarm logs. Alarms can be set for system diagnostics and logging such as program end, sample complete, missed samples and full bottle. Channel alarms are setpoint alarms for the recorded measurements (channels), such as pH, level and power supply voltage.
<b>Manual Sampling</b>	Initiates a sample collection independent of program in progress
<b>Automatic Shutdown</b>	Multiple Bottle Mode: After complete revolution of distributor arm (unless Continuous Mode is selected) Composite Mode: After preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container.
<b>Sample Volume</b>	Programmable in 10 mL increments from 10 - 10,000 mL
<b>Sample Interval</b>	Select. in single increments from 1 to 9,999 flow pulses or 1 to 9,999 mins in one minute increments
<b>Sample Trigger</b>	When equipped with flow sensor or pH/temperature sensor or peripheral monitoring options, sampling can be triggered upon an upset condition when field selectable limits are exceeded
<b>Data Logging</b>	SAMPLE HISTORY - Stores up to 4000 entries for sample time stamp, bottle number and sample status (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery). MEASUREMENTS - Stores up to 325,000 entries for selected measurement channels in accordance with the selected logging interval. EVENTS - Ability to store up to 2000 entries in Sample History logging. Records Power On, Power Fail, Firmware Updated, Pump Fault, Distributor Arm Error, Low Memory Battery, Low Main Battery, User On, User Off, Program Started, Program Resumed, Program Halted, Program Completed, Grab Sample, Tube Change Required, Sensor Communication Errors, Cooling Failed, Heating Failed, Thermal Error Corrected.
<b>Diagnostics</b>	View event and alarm logs as well as maintenance diagnostics

**Sample Pump and Strainer (all Samplers)**

<b>Sample Pump</b>	High-speed peristaltic, dual roller, with 0.95 ID x 0.16 OD cm (3/8 ID x 5/8-in. OD) pump tube; Pump body IP37, Polycarbonate cover
<b>Vertical Lift</b>	8.5 m using 8.8 m maximum of 3/8-in. vinyl intake tube at sea level at 20 - 25 °C (68 - 77 °F)
<b>Tubing</b>	Pump tubing: 9.5 mm ID x 15.9 mm OD (3/8" ID x 5/8" OD) Silicone Intake tubing: 1.0 - 4.75 m minimum length, 1/4" or 3/8" ID Vinyl or 3/8" ID PTFE-lined Polyethylene with protective outer cover (black or clear)
<b>Sample Volume Repeatability</b>	Typical: ±5% of 200 mL sample volume with: 4.6 m (15 ft) vertical lift, 4.9 m (16 ft) of 3/8- in vinyl intake tube, single bottle, full bottle shut-off at room temperature and 1524 m (5000 ft) elevation
<b>Sample Volume Accuracy</b>	Typical: ±5% of 200 mL sample volume with: 4.6 m (15 ft) vertical lift, 4.9 m (16 ft) of 3/8- in. vinyl intake tube, single bottle, full bottle shut-off at room temperature and 1524 m (5000 ft) elevation
<b>Sample Transport Velocity</b>	0.9 m/s with 4.6 m vertical lift, 4.9 m of 3/8 inch vinyl intake tubing, 21 °C (69.8 °F) and 1524 m (5000 ft) elevation
<b>Pump flow rate</b>	4.8 L/min (1.25 gpm) at 1 m (3 ft) vertical lift with 3/8-in intake tube typical
<b>Internal Clock</b>	±1 second per day at 25 °C (77 °F)
<b>Intake</b>	Strainers: Choice of PTFE and 316 stainless steel construction, or all 316 stainless steel in standard size, high velocity, and low profile for shallow depth applications Purge: Air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths Rinse: Intake line automatically rinsed with source liquid prior to each sample, from 1 to 3 rinses Retries or Fault: Sample collection cycle automatically repeated from 1 to 3 times if sample not obtained on initial attempt

\*Subject to change without notice.



## AS950 All Weather Refrigerated Sampler



The AS950 All-Weather Refrigerated Sampler simplifies sampling with a large, full-color display for intuitive, single-screen programming, USB upload and download capabilities and the ability to copy programs sampler to sampler to save time on tedious programing, and an error alert and status screen to eliminate uncertainty and simplify troubleshooting.

The custom-designed air-sensing thermostat controls temperature in accordance with USEPA and international guidelines, preserving samples regardless of outside temperatures and conditions.

Hach's AWRS cabinet is designed to withstand harsh environments, while maintaining sample integrity. The cabinet itself features:

- An energy efficient top-mounted compressor that allows heat to escape into the air, rather than into the sampler cabinet
- IP24 rated enclosure that keeps out water and debris
- Optional battery backup and controller compartment heater

**Learn More**



## AS950 Refrigerated Sampler



The AS950 Refrigerated Sampler is an easy and reliable solution for sample collection. With its large and intuitive display, USB data transfer capabilities, and simple one-screen programming, you can save time and streamline the entire sampling process.

Additionally, the AS950 Refrigerated Sampler accurately preserves your samples with an air-sensing thermostat designed to meet international and USEPA guidelines.

Equipped with an error message for easy troubleshooting and corrosion-resistant materials, the AS950 Refrigerated Sampler is the ideal choice for consistent and accurate sampling. Its large, color display, and USB upload and download capabilities make sampling more convenient and efficient.

Even in challenging environments, the AS950 Refrigerated Sampler ensures sample preservation and eliminates uncertainty with an available error warning and status screen.

**Learn More**





**Technical Data\***

	AS950 All-Weather Refrigerated Sampler (AWRS)	AS950 Refrigerated Sampler
Body material	Low-density Polyethylene with UV inhibitor	22 Gauge Steel (optional Stainless Steel) with vinyl laminate over-coating (Sampler)
Refrigeration Components and Plumbing	Corrosion protected with conformal all exposed copper tubing is insulated to avoid sweating and condensation	Corrosion protected with conformal all exposed copper tubing is insulated to avoid sweating and condensation
Cooling system	Top mounted compressor and fan-forced air cooled condenser; 11/5 HP 115 VAC: 115 °C (239 °F) thermal overload protector, 7.1 locked rotor amps; 230 VAC: 120 °C (248 °F) thermal overload protector, 7.6 A peak start current; 3-sided wraparound plate type evaporator; Rigid foam insulation: 3 in. (7.6cm) sides, 5 in. (12.7cm) top, 6 in. (15.2cm) bottom; Lockable lid to prevent tampering with programming; Recovery Time: Sampler temperature recovers to 4°C within 5 minutes after door has been held open for one minute in 24°C (75°F) ambient environment while in an active cooling cycle; Pull Down Time: from 24°C (75°F) to 4°C (39°F), 20 minutes; Temperature Control: 4 (±0.8) °C (39 (±1.5) °F)	1/7 HP, 75 Watt, 400 BTU/hr compressor, 120 CFM condenser fan, three-sided wraparound plate type evaporator, rigid foam insulation, air sensing thermostat capable of maintaining sample liquid at 4°C (39°F) in ambient temperature to 49°C (120°F) maximum; accurate to ±0.8°C (1.5°F), magnetic door seal
Temperature	Operating: AWRS: 0 - 50 °C (32 - 122 °F) AWRS with optional controller compartment heater: -40 - 50 °C (-40 - 122 °F) AWRS with controller compartment heater and AC battery back up: -15 - 40 °C (5 - 104 °F) Storage: -30 - 60 °C (-22 - 140 °F)	Operating: 0 - 50 °C (32 - 122 °F) Storage: -40 - 60 °C (-40 - 140 °F)
Dimensions	76 x 81 x 130 cm (30 x 32 x 51 in.)	61 x 61 x 112 cm (24 x 24 x 44 in.)
Weight	86 kg (189.6 lbs)	63 kg (138.9 lbs)
Certifications	cETLus (115 V, 60 Hz model) CE (230 V, 50 Hz model)	Refrigerator: cULus (115 V, 60 Hz model) CE (230 V, 50 Hz model)  15 V Power Adapter: cETLus (115 V, 50/60 Hz model) CE (230 V, 50 Hz model)
Sample Container	SINGLE BOTTLE: (1) 10 L (2.5 gal) glass or polyethylene or (1) 21 L (5.5 gal) polyethylene  MULTIPLE BOTTLES: (2) 10 L (2.5 gal) polyethylene or glass (4) 10 L (2.5 gal) polyethylene or glass (8) 2.3 L (0.6 gal) polyethylene or (8) 1.9 L (0.5 gal) glass (12) 2 L (0.5 gal) polyethylene (24) 1 L (0.3 gal) polyethylene or (24) 350 mL (12 oz.) glass	
Power Requirements (Voltage)	115/230 VAC	
Power Requirements (Hz)	50/60 Hz	
AS950 Controller		
Housing Material	PC/ABS blend, NEMA 4X, 6, IP68, corrosion and ice resistant (Controller)	
Display	1/4 VGA, Color; self-prompting/menu-driven program	
User Interface	Membrane switch keypad with 2 multiple function soft keys	
Lock Function	Access code protection prevents tampering	
Memory	Sample history: 4000 records; Data log: 325,000 records; Event log: 2000 records	
Communication Capabilities	USB and optional RS485 (Modbus)	
Inputs	One 0/4-20 mA input for flow pacing	
Certifications	Controller: CE, KC, RCM	
*Subject to change without notice		

\*Subject to change without notice.

## Order Information

**ASA.XXXXXXXXXX** All-Weather Refrigerated Sampler with AS950 Controller, available in various configurations and with several factory installed options. Please visit [hach.com](http://hach.com) or contact Hach for more information.

**ASR.XXXXXXXXXX** Refrigerated Sampler with AS950 Controller, available in various configurations and with several factory installed options. Please visit [hach.com](http://hach.com) or contact Hach for more information.

### Bottle Options and Accessories

<b>1918</b>	Bottle, 2.5 Gallon/10L, Polyethylene With Cap
<b>737</b>	Set of (24) 1 Liter Polyethylene Bottles with Caps
<b>2318</b>	Bottle Set of 2, 2.5 Gallon Glass with Caps Other container options are available.
<b>1511</b>	Bottle Tray for 8/24 Bottle Sampling
<b>1322</b>	Retainer for (24) 1 L polyethylene bottles and (8) bottle sets
<b>3527</b>	Composite Sampling Extension Tube
<b>8838</b>	Composite Sampling Tube Support with Tube
<b>8847</b>	Full Container Shut-off for Refrigerated and All Weather Samplers
<b>8986</b>	Composit Tube Support

### Distributors

<b>8562</b>	Distributor with arm for 12 and 24 bottle configurations
<b>8565</b>	Distributor with Arm for 8 Bottle Sampling in Refrigerated Base
<b>8568</b>	Distributor with Arm for 2 and 4 Bottle Configurations

### Tubing and Strainers

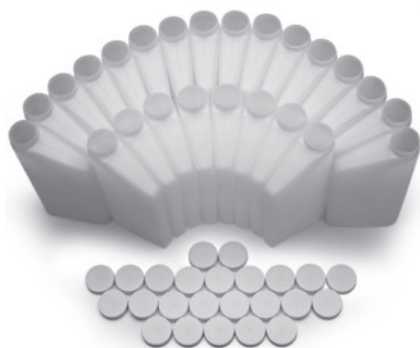
<b>920</b>	Vinyl Tubing, Intake, 3/8 inch Interior Diameter, 25 ft
<b>922</b>	7 m PTFE-lined Polyethylene tubing, 3/8" ID (requires Connection Kit 2186)
<b>926</b>	Strainer, PTFE/Stainless Steel
<b>2070</b>	Strainer, 1" outer diameter x 8" long, 316 SS
<b>2071</b>	Strainer, .406 Outer Diameter., 316 SS
<b>2186</b>	Connection Kit, PTFE/Polyethylene Tubing
<b>4600-15</b>	Silicone Pump Tubing, 3/8" Inner Diameter, 15 ft. Roll
<b>4600-50</b>	Silicone Pump Tubing, 3/8" Interior Diameter, 50 ft. Roll
<b>8957</b>	Pump Tube Insert, 900 Refrigerated Samplers
<b>9501400</b>	Pump tube insert, non-contact liquid detect

### Inputs/Outputs

<b>9494500</b>	IO9001 Module (connects through auxiliary port), includes 1 relay (high voltage)
<b>9494600</b>	IO9004 Module (connects through auxiliary port), includes multiple 0/4-20 mA outputs and inputs
<b>8528500</b>	Cable, auxiliary, multi-purpose half, 7 pin, 2.7 m (9 ft)
<b>8528501</b>	Cable, auxiliary, multi-purpose half, 7 pin, 7.6 m (25 ft)

### Accessories

<b>6613100</b>	Anchor Kit Set
<b>6989</b>	Insulated Weatherguard Enclosure
<b>9504700</b>	USB Cable, A to A



# AS950 Portable Sampler

The AS950 Portable Sampler's lightweight design, low power requirements, and mobility make it a reliable collection tool for the field. Applications include stormwater, environmental, industrial pre-treatment, and evidence-gathering for viral assessment (COVID-19).



## The AS950 is an essential tool for viral detection in wastewater:

- Representative sampling is critical to a reliable COVID-19 community spread program.
- COVID-19 sampling of wastewater helps in detection (days before symptoms).
- Simple setup with multiple power options:
  - Portable Compact Sampler Bundle, 12V, with 2.5 Gallon Bottle
  - Portable Compact Sampler Bundle, 115V, with 2.5 Gallon Bottle

## For stormwater sampling, the Portable Sampler provides:

- Up to two different programs defined by user conditions (Rainfall or pH thresholds).
- Varying sample sizes at user-specified time intervals:
- Time-weighted or flow volume increments.
- Flow-weighted.
- Collection over an entire run-off event (determined by rain or flow sensor).

## For industrial pre-treatment monitoring, the Portable Sampler features:

- A non-contact liquid detect to prevent cross-contamination.
- Quick pump tubing replacement with-out any tools.
- Optional pH sensor to initiate sampling when thresholds exceed your limits.

## Key features:

- Standard memory and USB allow program uploads and data to be logged and transferred - no laptop needed!
- Large full-color intuitive display for virtually error-free programming.
- A rugged and reliable pump minimizes maintenance and downtime.

## Three base sizes to meet various applications:

- Compact, for smaller, maintenance hole sampling.
- Standard, for the majority of applications.
- Large, for high capacity bottle composite sampling.

## Learn More



## Technical Data\*

### Sampler

<b>Body material</b>	Impact resistant ABS plastic, 3-section construction Double-walled base with 2.54 cm insulation, direct ice contact with bottles (Sampler)
<b>Sample Container</b>	<p><b>STANDARD BASE CAPACITY:</b>            (24) 1 L (0.26 gal) polyethylene or            (24) 350 mL (11.83 oz) glass bottles            (8) 2.3 L (0.6 gal) polyethylene or            (8) 1.9 L (0.5 gal) glass bottles            (4) 3.8 L (1 gal) polyethylene or            (4) 3.8 L (1 gal) glass bottles            (2) 3.8 L (1 gal) polyethylene or            (2) 3.8 L (1 gal) glass bottles            (1) 21 L (5.5 gal) polyethylene composite bottle or            (1) 15 L (4 gal) polyethylene composite bottle or            (1) 20 L (5.25 gal) polyethylene or            (1) 10 L (2.5 gal) polyethylene or            (1) 10 L (2.5 gal) glass</p> <p><b>COMPACT BASE CAPACITY:</b>            (24) 575 mL (19.44 oz) polyethylene bottles            (8) 950 mL (32.12 oz) glass bottles            (1) 10 L (2.5 gal) polyethylene bottle            (1) 10 L (2.5 gal) glass bottle</p> <p><b>COMPOSITE BASE CAPACITY:</b>            (1) 21 L (5.5 gal) polyethylene bottle</p> <p><b>ICE CAPACITY:</b>            Compact Base: 3.9 kg (8.5 lb.) with (24) 575 mL PE bottles            Standard Base: 14.5 kg (32 lb.) with (24) 350 mL glass bottles</p>
<b>Temperature</b>	Operating: 0 - 49 °C (32 - 120.2 °F) Storage: -40 - 60 °C (-40 - 140 °F)
<b>Power Requirements (Voltage)</b>	12 VDC
<b>Dimensions</b>	Standard Base: 50.5 cm x 69.4 cm (19.9 x 27.3 in.) Compact Base: 44.1 x 61 cm (17.4 x 24 in.) Composite Base: 50.28 x 79.75 cm (19.8 x 31.4 in.)
<b>Weight</b>	Standard: 15 kg (33.1 lbs) with 24x 1 L (0.26 gal) Polyethylene bottles; 14.8 kg (32.6 lbs) with 1x10 L (2.5 gal) Polyethylene bottle Compact Base: 12.2 kg (26.9 lbs) with 24x 575 mL (19.44 oz) Polyethylene bottles; 12.9 kg (28.4 lbs) with 1x 10 L (2.5 gal) Polyethylene bottle Composite Base: 15 kg (33.1 lbs) with 1x 21 L (5.5 gal) Polyethylene bottle

### AS950 Controller

<b>Housing Material</b>	PC/ABS blend, NEMA 4X, 6, IP68, corrosion and ice resistant (Controller)
<b>Display</b>	1/4 VGA, Color; self-prompting/menu-driven program
<b>User Interface</b>	Membrane switch keypad with 2 multiple function soft keys
<b>Lock Function</b>	Access code protection prevents tampering
<b>Memory</b>	Sample history: 4000 records; Data log: 325,000 records; Event log: 2000 records
<b>Communication Capabilities</b>	USB and optional RS485 (Modbus)
<b>Inputs</b>	One 0/4-20 mA input for flow pacing
<b>Certifications</b>	Controller: CE, KC, RCM

\*Subject to change without notice.

## Order Information

**ASP.XXXXXXXXXX** Portable Sampler with AS950 Controller, available in various configurations and with several factory installed options. Please visit [hach.com](http://hach.com) or contact Hach for more information.

### Bases for Portable Sampler

<b>8975</b>	Compact insulated base for 900 series portable sampler
<b>8976</b>	Standard Insulated Base for 900 Series Portable Sampler
<b>8561</b>	Composite insulated base for 6 gallon polyethylene container.

### Bottle Options and Accessories

<b>1918</b>	Bottle, 2.5 Gallon/10L, Polyethylene With Cap
<b>6494</b>	Container, 5.5 Gallon (21 Liter) Polyethylene
<b>737</b>	Set of (24) 1 Liter Polyethylene Bottles with Caps
<b>1369</b>	Bottle Set of 24, 575 mL, Polyethylene With Caps
<b>2348</b>	Bottle Set of 8, 950 mL, Glass with Caps
<b>2189</b>	Retainer for Set of 24 350 mL Glass Bottles
<b>1422</b>	Retainer for 8 or 24 Set Polyethylene/Glass Bottles
<b>2347</b>	Retainer/Positioner, (8) 950 mL Glass
<b>1502</b>	Container Support
<b>8996</b>	Tubing Support, full bottle shut off

### Distributors

<b>8582</b>	Distributor for 24 Bottle Standard and 12 Bottle Bases
<b>8580</b>	Distributor with Arm for 24 Bottle Portable Compact Sampling
<b>8584</b>	Distributor with Arm for 2, 4 or 8 Bottle Sampling with Compact Portable Base

### Tubing and Strainers

<b>920</b>	Vinyl Tubing, Intake, 3/8 inch Interior Diameter, 25 ft
<b>922</b>	7 m PTFE-lined Polyethylene tubing, 3/8" ID (requires Connection Kit 2186)
<b>926</b>	Strainer, PTFE/Stainless Steel
<b>2070</b>	Strainer, 1" outer diameter x 8" long, 316 SS
<b>2071</b>	Strainer, .406 Outer Diameter, 316 SS
<b>2186</b>	Connection Kit, PTFE/Polyethylene Tubing
<b>4652</b>	Strainer For High Velocity/Shallow Depth Applications
<b>4600-15</b>	Silicone Pump Tubing, 3/8" Inner Diameter, 15 ft. Roll
<b>4600-50</b>	Silicone Pump Tubing, 3/8" Interior Diameter, 50 ft. Roll
<b>8964</b>	Pump Tube Insert for Model 900 Portable Sampler
<b>9501400</b>	Pump tube insert, non-contact liquid detect

### Inputs/Outputs

<b>9494500</b>	IO9001 Module (connects through auxiliary port), includes 1 relay (high voltage)
<b>9494600</b>	IO9004 Module (connects through auxiliary port), includes multiple 0/4-20 mA outputs and inputs
<b>8528500</b>	Cable, auxiliary, multi-purpose half, 7 pin, 2.7 m (9 ft)
<b>8528501</b>	Cable, auxiliary, multi-purpose half, 7 pin, 7.6 m (25 ft)

### Accessories

<b>1355</b>	Portable Sampler Suspension Harness
<b>9542</b>	Manhole Support Bracket/Spanner, 18-27 Inches
<b>9557</b>	Manhole Support Bracket/Spanner, 28-48 Inches
<b>5713000</b>	Manhole Support Bracket, 18-27", for Portable Sampler
<b>6987</b>	Insulated Weatherguard Enclosure
<b>6992</b>	Insulated Weatherguard Enclosure
<b>8713200</b>	Solar Module, 10 Watt with Regulator
<b>8754400</b>	12 Volt Lead Acid Battery with 3 pin connector





# Service, Training & Methods

Hach Service Overview

The Plus Program

Care Advantage

Hach Customer Training

Hach Methods Quick Reference Guide

Pick & Ship



*Be Right™*



## Get the Service You Need from the Experts You Trust

Having a service plan on your Hach instruments is akin to adding another team member. That's because we're here to help you maintain operational stability, reduce compliance risk, maximize instrument uptime, and ensure data integrity. With regular maintenance visits and validating documentation, you're safeguarding your instrument's accuracy and meeting compliance requirements.

Plus, our expertise runs deep. Technical support is a quick call away and our bench and field service teams have you on the radar.

**Confidence delivered, that's Hach Service.**



### Service Overview

	Essential Protection	Premium Protection	Customized Protection
<b>Benefits</b>	Maximum uptime Extend instrument lifetime Confidence in your results	No unexpected costs Priority scheduling Fully covered repairs	User maintenance Flexible financing options Tailored service options
<b>Included In Plan</b>	Instrument calibration Preventative maintenance Automatic alerts Software updates Smart monitoring Proactive support Wear parts included	Instrument calibration Preventative maintenance Start up Automatic alerts Software updates Smart monitoring Proactive support Wear parts included	Instrument calibration Preventative maintenance Start up Automatic alerts Software updates Smart monitoring Proactive support Wear parts included
<b>Repairs</b>	Billable repairs	Instrument repairs Spare part replacement	Instrument repairs Spare part replacement
<b>Customization</b>	—	—	Embedded service experts Financing options Tenders Multi-site service support

# Service Partnership Overview

Hach provides flexible solutions that are tailored to your needs from full coverage, on-site support to economical, comprehensive service at the Hach Service Center. No matter your selection, you get expert care, advanced diagnostics, and priority support to keep your instruments running smoothly. Simply choose the **Field Service** or **Bench Service** option that meets the unique needs of your instruments and facility.

## Field Service Partnership

The Field Service Partnership (FSP) is a full coverage plan available for instruments that can be repaired on site. This plan is typically purchased for online instruments that are outside of the factory warranty period. This is the ideal option for those who value on-site service and are looking for all-inclusive service that eliminates unplanned expenses.

### Field Service Partnership includes:

- On-site maintenance, calibration, and certification service according to the specific instrument requirements
- Advanced maintenance utilizing special tools and in-depth diagnostics exclusive to Hach Service
- Full coverage for on-site repairs
- Priority response time
- Travel cost
- Priority status for remote troubleshooting with live technical specialists

## Bench Service Partnership

The Bench Service Partnership (BSP) provides all-inclusive service at the Hach Service Center. This plan is available for most instruments but is typically purchased for laboratory instruments and online probes that are easy to ship. This is a great option for those looking for the most economical full-coverage plan or those with a small number of instruments.

### Bench Service Partnership includes:

- Maintenance, calibration, and certification at the Hach Service Center according to the specific instrument requirements
- Full coverage for repairs at the Hach Service Center
- Free loaner instruments during service (subject to availability)
- Advanced maintenance utilizing special tools and in-depth diagnostics exclusive to Hach Service
- Priority 5-business-day turnaround and free 2-day return shipping
- Priority status for remote troubleshooting with live technical specialists

## Additional Service Partnership Options

WarrantyPlus Partnership	Preventative Maintenance Partnership	BenchPlus Partnership
The WarrantyPlus Partnership adds value to a factory warranty in year one, similar to an FSP, with commissioning and start-up included.	The Preventative Maintenance Partnership provides on-site maintenance service and is available for most instruments.	The BenchPlus Partnership is a full coverage option available for instruments that can be maintained, but not repaired, on site.
(Available for select instruments)	(Also available for Bench Service)	(Available for select instruments)



### Learn More





# The Plus Program

## Equipment, Service, Commissioning, and Supplies In One Monthly Subscription



The Plus Program™ is your comprehensive water monitoring bundle that provides you Hach's collection of innovative instruments and measurement technologies, expert customer support and maintenance, and on-demand supplies and consumables all in a budget-friendly monthly subscription.

### Minimized Upfront Costs

The Plus Program's flexible subscription structure lets you buyout, renew, or return your instrument at the end of your contract, reducing your upfront costs and maximizing your budget.

### World Class Support

Hach's worldwide fleet of technical support, field service, and central service teams are available to you for product questions, field maintenance, and repairs so you can maximize your uptime.

### Connected Instrumentation

Unlock your facility's full potential with Hach's expansive collection of enabled water monitoring devices, giving you full visibility into your plant's health and identify problems before they happen.

### On-Demand Supply Delivery

Get your supplies, including reagents, maintenance kits, and other essentials, delivered on-demand to take out all the stress of your processes and have everything you need shipped to your door.

**Learn More**





# Care Advantage

## The Complete Service Solution For All Your Instruments

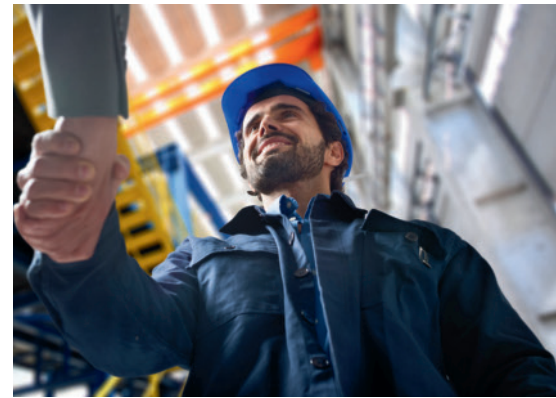
The all-inclusive Hach package of preventative and scheduled regular maintenance, remote monitoring, training, servicing, and repairs of all your Hach instruments, at all your sites, in one convenient agreement. Not only do you ensure the longevity and optimum functioning of your fleet of Hach equipment, but you take away the hassle, cost, and risk of finding the resources to do so.

**From set-up to routine maintenance, and everything in between, your Care Advantage contract ensures your instruments, software, and chemistries are always available and working—including:**

- Replacement of parts, hardware checks, and inspection of internal components.
- Onsite or virtual training of your internal teams by dedicated Hach specialists.
- Routine checks to assure your critical instruments are working at peak efficiency.
- Cleaning tasks, routine inspections, and calibrations of your Hach instruments.
- Work order and logbook evaluation to keep you audit ready and compliant.
- Ongoing reports and maintenance schedules to provide your team with the insights they need.

Care Advantage is Hach's comprehensive solution to optimizing the performance and reliability of your equipment. By choosing Care Advantage, you eliminate the complexity and costs of managing your resources in-house, ensure you are in front of any costly downtime, and equip your team with actionable insights so they can keep your facility operational and compliant.

**Learn More**



# Hach Customer Training

## Training for the Way You Want to Learn

Our instructors combine their expertise with Hach's storied legacy as a water analysis leader. You'll learn with people who understand water and your goals.

**Hachtraining@hach.com**



### Customized Trainings: Our Most Popular Option

Let us design a course to meet your needs at a time and place that is convenient for you.

- Onsite at Your Facility
- Hach Facility-Loveland, CO
- Virtually with Real-Time, Live Instructors

Choose from any combination of these options:

*Lab/Portable Hach Instruments*  
*Process/Online Hach Instruments*  
*Parameters for Your Industry*

**Learn More**



### Chlorine Analysis Workshop: Monthly Virtual Course with Live Instructor

- Course includes the DR300 Pocket Colorimeter (LR/HR or MR/HR), reagents, accessories, and training.
- Already have the DR300 Pocket Colorimeter?  
Use **CLASSONLY** code at signup for the discounted workshop only!

This workshop is designed to offer a simple overview of the use of chlorine disinfectants. We will discuss the proper sampling techniques, colorimetry theory, and hand-held instrument measuring procedures. The theory will be demonstrated with hands-on testing that includes unknown samples, spiking and standards. At the conclusion of the course the attendee will have the tools needed to sample and report disinfection values with confidence.

**Learn More**



### Digital Learning: Visit Our Training Site to Find Over 42 eLearnings

Categories Include:

- Controllers
  - Lab Products
  - Process Products
  - Water Quality Parameter Training
  - Water Quality Technology Training
- 1 Year Access Per Person

**Learn More**



# Hach Methods Quick Reference Guide

The tables on the following 4 pages list test ranges, methods of analysis, and corresponding reagent set Product Numbers.

The complete procedures are available on [www.hach.com](http://www.hach.com). The ranges given are for the pre-calibrated instrument readout; higher ranges can be analyzed by sample dilution.

Parameters marked "EPA" are EPA-approved, accepted, or equivalent for reporting purposes; sample pretreatment may be required on some procedures. If no reagent set is listed for a parameter, order needed reagents and supplies separately.

*Part numbers may vary by country.*

Parameter	EPA	Method/ Technology	Method Name	Method Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	SL250	Prod. No.
Alkalinity, Total		TNTplus	Colorimetric	10239	25 - 400 mg/L CaCO <sub>3</sub>	•	•	•					TNT870
Alkalinity, LR		Chemkeys	Colorimetric	10280	20 - 200 mg/L CaCO <sub>3</sub>						•	•	8636200
Alkalinity, HR		Chemkeys	Colorimetric	10283	200 - 700 mg/L CaCO <sub>3</sub>						•	•	8636100
Aluminum		Powder Pillows	Aluminon	8012	0.008 - 0.800 mg/L Al	•	•	•	•	•			2242000
Aluminum		Powder Pillows	Eriochrome Cyanine R	8326	0.002 - 0.250 mg/L Al	•	•	•					2603700
Aluminium		TNTplus	Chromazurol S	10215	0.02 - 0.50 mg/L Al	•	•	•					TNT848
Ammonia		Powder Pillows	Salicylate	8155	0.01 - 0.50 mg/L NH <sub>3</sub> -N	•	•	•	•	•			2668000
Ammonia	Yes	Solution	Nessler	8038	0.02 - 2.50 mg/L NH <sub>3</sub> -N	•	•	•					2458200
Ammonia		Test 'N Tube	Salicylate	10023	0.02 - 2.50 mg/L NH <sub>3</sub> -N	•	•	•	•				2604545
Ammonia		Test 'N Tube	Salicylate	10031	0.4 - 50.0 mg/L NH <sub>3</sub> -N	•	•	•	•				2606945
Ammonia, Nitrogen	Yes	TNTplus	Salicylate	10205	0.015 - 2.00 mg/L NH <sub>3</sub> -N	•	•	•					TNT830
Ammonia, Nitrogen		TNTplus	Salicylate	10205	0.50 - 5.00 mg/L NH <sub>3</sub> -N	•	•	•					TNT829
Ammonia, Nitrogen	Yes	TNTplus	Salicylate	10205	1 - 12 mg/L NH <sub>3</sub> -N	•	•	•					TNT831
Ammonia, Nitrogen	Yes	TNTplus	Salicylate	10205	2 - 47 mg/L NH <sub>3</sub> -N	•	•	•					TNT832
Ammonia, Nitrogen		TNTplus	Salicylate	10205	10 - 100 mg/L NH <sub>3</sub> -N	•	•	•					TNT837
Ammonia, Nitrogen	Yes	TNTplus	Salicylate	10205	47 - 130 mg/L NH <sub>3</sub> -N	•	•	•					TNT833
Ammonia, Nitrogen	Yes	TNTplus	Salicylate	10301	100 - 1800 mg/L NH <sub>3</sub> -N	•	•	•					TNT834
Anammox Activity		TNTplus	Heme	10304	0 - 1000 mAbs	•	•	•					TNT882KTO
Ammonia, Free; Monochloramine		Chemkeys	Indephenol	10269	Free Ammonia: 0.05 - 0.50 mg/L NH <sub>3</sub> -N Monochloramine: 0.04 - 4.00 mg/L Cl <sub>2</sub>						•		9429600
Ammonia, Total		Chemkeys	Indophenol	10268	0.05 - 1.50 mg/L NH <sub>3</sub> -N						•	•	9425200
Barium		Powder Pillows	Turbidimetric	8014	2 - 100 mg/L Ba	•	•	•					1206499
Benzotriazole, Tolytriazole		Powder Pillows	UV Photolysis	8079	1.0 - 20.0 mg/L Tolytriazole	•	•	•	•				2141299
Boron		TNTplus	Azomethine-H	10274	0.05 - 2.50 mg/L B	•	•	•					TNT877
Total Chlorine, Bromine, Iodine	Yes	Powder Pillows	DPD	8167	0.02 - 2.00 mg/L Cl <sub>2</sub>	•	•	•	•	•			2105669
Total Chlorine, Bromine, Iodine	Yes	Accuvac	DPD	8167 Chlorine	0.02 - 2.00 mg/L Cl <sub>2</sub>	•	•	•	•	•			2503025
Cadmium		Powder Pillows	Dithizone	8017	0.7 - 80 µg/L Cd	•	•	•					2242200
Cadmium		TNTplus	Cadion	10217	0.02 - 0.30 mg/L Cd	•	•	•					TNT852
Oxygen Scavengers		Solution	Iron Reduction	8140	5 - 600 Carbohydrazide	•	•	•	•				2446600

Parameter	EPA	Method/ Technology	Method Name	Method Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	SL250	Prod. No.
Chloramine, Mono		Powder Pillows	Indophenol	10171	0.04 - 4.50 mg/L Cl <sub>2</sub>	•	•	•	•	•			2802246
Monochloramine		Chemkeys	Indophenol	10270	0.04 - 4.00 mg/L Cl <sub>2</sub>						•	•	9429400
Chloride		Solution	Mercuric Thiocyanate	8113	0 - 25.0 mg/L Cl <sup>-</sup>	•	•	•					2319800
Chloride		TNTplus	Iron(III)-thiocyanate	10291	1 - 70 mg/L Cl 70 - 1000 mg/L Cl	•	•	•					TNT879
Free Chlorine, Chlorine Dioxide	Yes	Powder Pillows	DPD	8021	0.02 - 2.00 mg/L Cl <sub>2</sub>	•	•	•	•	•			2105569
Free Chlorine, Chlorine Dioxide	Yes	Accuvac	DPD	8021	0.02 - 2.00 mg/L Cl <sub>2</sub>	•	•	•	•	•			2502025
Chlorine, Free		Solution	DPD	10059	0.03 - 5.00 mg/L Cl <sub>2</sub> for CL17, 0.03 - 10.00 mg/L Cl <sub>2</sub> for CL17sc	•	•	•					2556900
Chlorine, Free	Yes	TNTplus	DPD	10231	0.05 - 2.00 mg/L Cl <sub>2</sub>	•	•	•					TNT866
Chlorine, Free	Yes	Powder Pillows	DPD	8021	0.1 - 10.0 mg/L Cl <sub>2</sub>	•	•	•	•	•			1407099
Chlorine, Total	Yes	TNTplus	DPD	10231, 10232	0.05 - 2.00 mg/L Cl <sub>2</sub>	•	•	•					TNT867
Chlorine, Free		Chemkeys		10260	0.04 - 4.00 mg/L Cl <sub>2</sub>						•	•	9429000
Chlorine	Yes	Solution	DPD	8370	2 - 500 µg/L Cl <sub>2</sub>	•	•	•					2563000
Chlorine, Total		Solution	DPD	8370	0.03 - 5.00 mg/L Cl <sub>2</sub> for CL17, 0.03 - 10.00 mg/L Cl <sub>2</sub> for CL17sc	•	•	•					2557000
Total Chlorine, Bromine, Iodine	Yes	Powder Pillows	DPD	8167 LR	0.02 - 2.00 mg/L Cl <sub>2</sub>	•	•	•	•	•			1406499
Chlorine, Total		Chemkeys		10260	0.04 - 10 mg/L Cl <sub>2</sub>						•	•	9429100
Chlorine Dioxide	Yes		DPD/Glycine	10126	0.04 - 5.00 mg/L ClO <sub>2</sub>	•	•	•	•	•			2770900
Chlorine Dioxide			Chlorophenol Red	8065	0.01 - 1.00 mg/L ClO <sub>2</sub>	•	•	•					2242300
Chromium	Yes	Powder Pillows	1,5-Diphenylcarbohydrazide	8023	0.010 - 0.700 mg/L Cr <sup>6+</sup>	•	•	•	•				1271099
Chromium, Hexavalent Chromium, Total	Yes	TNTplus	1,5-Diphenylcarbohydrazide	10218 (Cr <sup>6+</sup> )	0.03 - 1.00 mg/L Cr	•	•	•					TNT854
Chromium, total		Powder Pillows	Alkaline Hypobromite Oxidation	8024	0.01 - 0.70 mg/L Cr	•	•	•	•				2242500
Cobalt, Nickel			PAN	8078	0.01 - 2.00 mg/L Co	•	•	•					2651600
COD (Chemical Oxygen Demand)		Test 'N Tube	Reactor Digestion	8000	0.7 - 40.0 mg/L	•	•	•					2415825
COD (Chemical Oxygen Demand)	Yes	Test 'N Tube	Reactor Digestion	8000	3 - 150 mg/L	•	•	•	•				2125825
COD (Chemical Oxygen Demand)	Yes	Test 'N Tube	Reactor Digestion	8000	20 - 1500 mg/L	•	•	•	•				2125925
COD (Chemical Oxygen Demand)		Test 'N Tube	Reactor Digestion	8000	200 - 15,000 mg/L	•	•	•	•				2415925
COD (Chemical Oxygen Demand)		Test 'N Tube	Manganese III Reactor Digestion	10067	30 - 1000 mg/L	•	•	•	•				2623425
Chemical Oxygen Demand (COD), Mercury-Free		TNTplus	Reactor Digestion	8000	25 - 1000 mg/L COD	•	•	•					TNT825
COD (for samples up to 20000 mg/L Chloride)		TNTplus	Reactor Digestion	10299	7 - 70 mg/L COD	•	•	•					TNT815



Parameter	EPA	Method/ Technology	Method Name	Method Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	SL250	Prod. No.
COD (for samples up to 20000 mg/L Chloride)		TNTplus	Reactor Digestion	10299	70 - 1000 mg/L COD	•	•	•					TNT816
COD (Chemical Oxygen Demand)		TNTplus	Reactor Digestion	10211	1 - 60 mg/L COD	•	•	•					TNT820
COD (Chemical Oxygen Demand)	Yes	TNTplus	Reactor Digestion	8000	3 - 150 mg/L COD	•	•	•					TNT821
COD (Chemical Oxygen Demand)	Yes	TNTplus	Reactor Digestion	8000	20 - 1500 mg/L COD	•	•	•					TNT822
COD (Chemical Oxygen Demand)		TNTplus	Reactor Digestion	10212	250 - 15000 mg/L COD	•	•	•					TNT823
COD		TNTplus	Reactor Digestion	10212	5,000 - 60,000 mg/L	•	•	•					TNT824
Copper		Powder Pillows	Porphyrin	8143	2 - 210 µg/L Cu	•	•	•	•				2603300
Copper	Yes	Powder Pillows	Bichinchoninate	8506	0.04 - 5.00 mg/L Cu	•	•	•	•				2105869
Copper		TNTplus	Bathocuproin	10238	0.1 - 8.0 mg/L Cu	•	•	•					TNT860
Copper		Chemkeys		10272	0.06 - 5.00 mg/L Cu						•	•	9429200
Cyanide		Powder Pillows	Pyridine-Pyrazalone	8027	0.002 - 0.240 CN <sup>-</sup>	•	•	•	•				2430200
Cyanide	Yes	TNTplus	Pyridine barbituric acid	10265	0.01 - 0.6 mg/L CN	•	•	•					TNT862
Cyanuric Acid		Powder Pillows	Turbidimetric	8139	5 - 50 mg/L		•	•	•				246066
Dissolved Oxygen		Accuvac	Indigo Carmine	8316	6 - 800 µg/L O <sub>2</sub>	•	•	•	•				2501025
Dissolved Oxygen		Accuvac	HRDO	8166	0.3 - 15.0 mg/L O <sub>2</sub>	•	•	•	•	•			2515025
Dissolved Iron		Chemkeys		10281	0.05 - 3.00 mg/L Fe						•	•	8636000
Fluoride	Yes	Solution	SPADNS 2	10225	0.02 - 2.00 mg/L F	•	•	•	•				2947549
Fluoride	Yes	TNTplus	SPADNS 2	10225	0.02 - 2.00 mg/L F	•	•	•	•				2527025
Fluoride	Yes	TNTplus	SPADNS 2	10225	0.1 - 2.5 mg/L F	•	•	•					TNT878
Fluoride	Yes	Solution	SPADNS	8029	0.02 - 2.00 mg/L F	•	•	•	•				44449
Fluoride	Yes	LCK	SPADNS	8029	0.02 - 2.00 mg/L F	•	•	•	•				2506025
Formaldehyde		Solution	MBTH	8110	3 - 500 µg/L CH <sub>2</sub> O	•	•	•					2257700
Formaldehyde		TNTplus	Acetylacetone	10295	0.5 - 10 mg/L H <sub>2</sub> CO	•	•	•					TNT871
Hardness		Colorimeter	Chlorophosphonazo	8374	8 - 1000 µg/L CaCO <sub>3</sub>	•	•	•					2603100
Hardness, Ca and Mg		Solution	Calmagite Colorimetric	8030	0.05 - 4.00 mg/L CaCO <sub>3</sub>	•	•	•	•				2319900
Hardness, LR		Chemkeys		10284	3 - 100 mg/L CaCO <sub>3</sub>						•	•	8636400
Hardness, HR		Chemkeys		10285	90 - 750 mg/L CaCO <sub>3</sub>						•	•	8636300
Water Hardness		TNTplus	Metalphthalein	10293	20 - 350 mg/L as CaCO <sub>3</sub> 5 - 100 mg/L Ca 3 - 50 mg/L Mg	•	•	•					TNT869
Hydrazine		Solution	p-Dimethylaminobenzaldehyde	8141	4 - 600 µg/L N <sub>2</sub> H <sub>4</sub>	•	•	•	•				179032
International Bitter Units		TNTplus	Analogous MEBAK and ASBC	10288	≥2 International Bitter Units	•	•						TNT817
Iron, Ferrous Iron, Total	Yes	TNTplus	1, 10 Phenanthroline	10229	0.2 - 6.0 mg/L Fe	•	•	•					TNT858
Iron		Solution	FerroZine	8147	0.009 - 1.400 mg/L Fe	•	•	•	•				230166
Iron		Solution	FerroZine	8147	0.009 - 1.400 mg/L Fe	•	•	•					230149

Parameter	EPA	Method/ Technology	Method Name	Method Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	SL250	Prod. No.
Iron, Ferrous		Powder Pillows	1, 10 Phenanthroline	8146	0.02 - 3.00 mg/L Fe <sup>2+</sup>	•	•	•	•				103769
Iron		Powder Pillows	FerroMo	8365	0.01 - 1.80 mg/L Fe	•	•	•	•				2544800
Iron		Powder Pillows	TPTZ	8112	0.012 - 1.800 mg/L Fe	•	•	•	•	•			2608799
Iron	Yes	Powder Pillows	FerroVer	8008	0.02 - 3.00 mg/L Fe	•	•	•	•	•			2105769
Iron	Yes	Accuvac	FerroVer	8008	0.02 - 3.00 mg/L Fe	•	•	•	•	•			2507025
Iron			1,10-Phenanthroline		0.01 - 1 mg/L Fe	•	•						HPT251
Lead		Solution	LeadTrak	8317	5 - 150 µg/L Pb	•	•	•					2375000
Lead	Yes		Dithizone	8033	3 - 300 µg/L Pb	•	•	•					2243100
Lead		TNTplus	PAR	10216	0.1 - 2.0 mg/L Pb	•	•	•					TNT850
Manganese		LCW	PAN	8149	0.006 - 0.700 mg/L Mn	•	•	•	•				2651700
Manganese		Solution		10286	0.005 - 0.500 mg/L Mn	•	•	•					HPT291
Manganese	Yes	Powder Pillows	Periodate Oxidation	8034	0.1 - 20.0 mg/L Mn	•	•	•	•	•			2430000
Magnesium		TNTplus	Metaphthalein	10292	0.5 - 50 mg/L Mg	•	•	•					TNT849
Mercury			Cold Vapor Concentration	10065	0.1 - 2.5 µg/L Hg	•	•	•					2658300
Molybdenum, Molybdate			Ternary Complex	8169	0.02 - 3.00 mg/L Mo	•	•	•	•	•			2449400
Molybdenum		Powder Pillows	Mercaptoacetic Acid	8036	0.3 - 40.0 mg/L Mo	•	•	•	•				2604100
Nickel	Yes	Solution	Heptoxime	8037	0.02 - 1.80 mg/L Ni	•	•	•					2243500
Nickel		TNTplus	Dimethylglyoxime	10220	0.1 - 6.0 mg/L Ni	•	•	•					TNT856
Nitrate, Nitrogen		Powder Pillows	Cadmium Reduction	8192	0.01 - 0.50 mg/L NO <sub>3</sub> -N	•	•	•	•				2429800
Nitrate, Nitrogen	Yes	TNTplus	Dimethylphenol	10206	0.23 - 13.50 mg/L NO <sub>3</sub> -N	•	•	•					TNT835
Nitrate		Powder Pillows	Cadmium Reduction	8039 HR	0.3 - 30.0 mg/L NO <sub>3</sub> -N	•	•	•	•				2106169
Nitrate		Accuvac	Cadmium Reduction	8039	0.3 - 30.0 mg/L NO <sub>3</sub> -N	•	•	•	•	•			2511025
Nitrate		Test 'N Tube	Chromotropic Acid	10020	0.2 - 30.0 mg/L NO <sub>3</sub> -N	•	•	•	•				2605345
Nitrate, Nitrogen	Yes	TNTplus	Dimethylphenol	10206	5 - 35 mg/L NO <sub>3</sub> -N	•	•	•					TNT836
Nitrite	Yes	Powder Pillows	Diazotization	8507	0.002 - 0.300 mg/L NO <sub>2</sub> -N	•	•	•	•				2107169
Nitrite		Test 'N Tube	Diazotization	10019	0.003 - 0.500 mg/L NO <sub>2</sub> -N	•	•	•	•				2608345
Nitrite, Nitrogen	Yes	TNTplus	Diazotization	10207	0.015 - 0.600 mg/L NO <sub>2</sub> -N	•	•	•					TNT839
Nitrite, Nitrogen	Yes	TNTplus	Diazotization	10237	0.6 - 6.0 mg/L NO <sub>2</sub> -N	•	•	•					TNT840
Nitrite, Nitrogen		TNTplus	Diazotization	10296	2 - 90 mg/L NO <sub>2</sub> -N	•	•	•					TNT841
Nitrate, Nitrogen		TNTplus	Dimethylphenol	10206	15 - 150 mg/L NO <sub>3</sub> -N								TNT838
Nitrite		Powder Pillows	Ferrous Sulfate	8153	2 - 250 mg/L NO <sub>2</sub>	•	•	•	•				2107569
Nitrite		Chemkeys		10271	0.005 - 0.600 mg/L NO <sub>2</sub> -N						•	•	9429300
Nitrogen, total		Test 'N Tube	Persulfate Digestion	10071	0.5 - 25.0 mg/L N	•	•	•	•				2672245
Nitrogen, Total		TNTplus	Persulfate Digestion	10208	1 - 16 mg/L N	•	•	•					TNT826
Nitrogen, Total		TNTplus	Persulfate Digestion	10208	5 - 40 mg/L N	•	•	•					TNT827
Nitrogen, total		Test 'N Tube	Persulfate Digestion	10072	2 - 150 mg/L N	•	•	•	•				2714100
Nitrogen, Total		TNTplus	Persulfate Digestion	10208	20 - 100 mg/L N	•	•	•					TNT828

Parameter	EPA	Method/ Technology	Method Name	Method Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	SL250	Prod. No.
Nitrogen, Total		TNTplus	Persulfate Digestion	10208	100 - 250 mg/L N								TNT818
Nitrogen		Test 'N Tube	Titanium Trichloride Reduction		0.2 - 25.0 mg/L	•	•	•	•				2604945
Nitrogen, Simplified Total Kjeldahl	Yes	TNTplus	Simplified TKN (s-TKN™)	10242	0 - 16 mg/L N	•	•	•					TNT880
Nitrogen		Solution	Nessler	8075	1 - 150 mg/L TKN	•	•	•	•				2495300
Ozone		Accuvac	Indigo	8311	0.01 - 0.25 mg/L O <sub>3</sub>	•	•	•	•	•			2516025
Ozone		Accuvac	Indigo	8311	0.01 - 0.75 mg/L O <sub>3</sub>	•	•	•	•	•			2517025
Ozone		Accuvac	Indigo	8311	0.01 - 1.50 mg/L O <sub>3</sub>	•	•	•	•				2518025
Peracetic Acid		Chemkeys		10297	0.04 - 50.0 mg/L PAA						•	•	8635200
pH		Chemkeys		10298	pH 6.3 - 9.0						•	•	9759000
pH		Solution	Colorimetric Phenol Red		6.5 - 8.5				•				2657512
Phenols	Yes		4-Aminoantipyrene	8047	0.002 - 0.200 mg/L	•	•	•					2243900
Phenols	Yes	TNTplus	4-Aminoantipyrene	10266	5 - 150 mg/L	•	•	•					TNT868
Phosphonates		Powder Pillows	Persulfate UV Oxidation	8007	0.02 - 2.50 mg/L PO <sub>4</sub>	•	•	•	•				2429700
Phosphorus, reactive	Yes	Powder Pillows	Ascorbic Acid	8048	0.02 - 2.50 mg/L PO <sub>4</sub>	•	•	•	•	•			2106069
Phosphate, Reactive		Accuvac	Ascorbic Acid	8048	0.02 - 2.50 mg/L PO <sub>4</sub>	•	•	•	•	•			2508025
Phosphate, ortho		Test 'N Tube	Ascorbic Acid	8048	0.06 - 5.00 mg/L PO <sub>4</sub>	•	•	•	•				2742545
Phosphorus		Solution	Amino Acid	8178	0.23 - 30.00 mg/L PO <sub>4</sub>	•	•	•	•				2244100
Phosphorous, reactive		Solution	Phosphormolybdenum Blue		0.01 - 0.5 mg/L PO <sub>4</sub> -P	•	•						HPT487
Orthophosphate, LR		Chemkeys		10279	0.20 - 4.00 mg/L PO <sub>4</sub>						•	•	8636600
Orthophosphate, HR		Chemkeys		10282	2.0 - 30.0 mg/L PO <sub>4</sub>						•	•	8636500
Phosphorus, Reactive		Solution	Molybdovanadate	8114	0.3 - 45.0 mg/L PO <sub>4</sub>	•	•	•	•				2076032
Phosphate, ortho		Test 'N Tube	Molybdovanadate	8114	1.0 - 100.0 mg/L PO <sub>4</sub>	•	•	•	•				2767345
Phosphorus		Solution	Molybdovanadate	8114	0.3 - 45.0 mg/L PO <sub>4</sub>	•	•	•					2076049
Phosphorus		Solution	Ascorbic Acid	10055	19 - 3000 µg/L PO <sub>4</sub>	•	•	•					2678600
Phosphorus, Reactive (Ortho)		TNTplus	Molybdovanadate	10214	1.6 - 30 mg/L PO <sub>4</sub> -P; 5 - 90 mg/L PO <sub>4</sub>	•	•	•					TNT846
Phosphate, ortho + total		Test 'N Tube	Ascorbic Acid	8180	0.06 - 5.00 mg/L PO <sub>4</sub>	•	•	•	•				2742745
Phosphate, total		Test 'N Tube	Ascorbic Acid	8190	0.06 - 3.50 mg/L PO <sub>4</sub>	•	•	•	•				2742645
Phosphate, total		Test 'N Tube	Molybdovanadate	10127	1.0 - 100 mg/L PO <sub>4</sub>	•	•	•	•				2767245
Phosphorus, Acid Hydrolyzable Phosphorus, Reactive (Ortho) Phosphorus, Total	Yes	TNTplus	Ascorbic Acid	10209	0.05 - 1.5 mg/L PO <sub>4</sub> -P; 0.15 - 4.5 mg/L PO <sub>4</sub>	•	•	•					TNT843
Phosphorus, Acid Hydrolyzable Phosphorus, Reactive (Ortho) Phosphorus, Total	Yes	TNTplus	Ascorbic Acid	10209	0.5 - 5.0 mg/L PO <sub>4</sub> -P (1.5 - 15.0 mg/L PO <sub>4</sub> )	•	•	•					TNT844

Parameter	EPA	Method/ Technology	Method Name	Method Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	SL250	Prod. No.
Phosphorus, Acid Hydrolyzable Phosphorus, Reactive (Ortho) Phosphorus, Total	Yes	TNTplus	Ascorbic Acid	10209	2 - 20 mg/L PO <sub>4</sub> -P; 6 - 60 mg/L PO <sub>4</sub>	•	•	•					TNT845
Potassium		Powder Pillows	Tetraphenyl- borate	8049	0.1 - 7.0 mg/L K	•	•	•					2459100
Quaternary Ammonium Compounds		Powder Pillows	Direct Binary Complex	8337	0.2 - 5.0 mg/L as CTAB	•	•	•					2459200
Silica		Solution	Heteropoly Blue	8282	3 - 1000 µg/L SiO <sub>2</sub>	•	•	•					2553500
Silica		Solution	Heteropoly Blue	8282	3 - 1000 µg/L SiO <sub>2</sub>	•	•	•					2678500
Silica		Powder Pillows	Heteropoly Blue	8186	0.010 - 1.600 mg/L SiO <sub>2</sub>	•	•	•	•				2459300
Silica		Powder Pillows	Silicomolyb- date	8185	1 - 100 mg/L SiO <sub>2</sub>	•	•	•	•				2429600
Sulfate	Yes	Powder Pillows	SulfaVer 4	8051	2 - 70 mg/L SO <sub>4</sub> <sup>2-</sup>	•	•	•	•				2106769
Sulfate		TNTplus	Turbidimetric	10227	40 - 150 mg/L SO <sub>4</sub>	•	•	•					TNT864
Sulfate		TNTplus	Turbidimetric	10227	150 - 900 mg/L SO <sub>4</sub>	•	•	•					TNT865
Sulfide	Yes	TNTplus	Dimeth- yl-p-phenyl- enediamine	10294	0.1 - 2.0 mg/L S <sup>2-</sup>	•	•	•					TNT861
Surfactants, Anionic		TNTplus	Methylene Blue (MBA)	10278	0.1 - 4.0 mg/L	•	•	•					TNT874
Surfactants, Cationic		TNTplus	Bromophenol Blue	10305	0.2 - 2 mg/L as CTAB	•	•	•					TNT885
Surfactants, Nonionic		TNTplus	TBPE	10275	0.2 - 6.0 mg/L as Triton x 100	•	•	•					TNT875
Surfactants, Nonionic		TNTplus	TBPE	10275	6 - 200 mg/L as Triton X-100	•	•	•					TNT876
Tannin & Lignin		Solution	Tyrosine	8193	0.1 - 9.0 mg/L as Tannic Acid	•	•	•	•				2244600
TOC (Total Organic Carbon)		Test 'N Tube	Direct	10129	0.3 - 20.0 mg/L	•	•	•	•				2760345
TOC (Total Organic Carbon)	Yes	TNTplus	Direct Method	10267	1.5 - 30.0 mg/L C	•	•	•					TNT810
TOC (Total Organic Carbon)		Test 'N Tube	Direct	10173	15 - 150 mg/L	•	•	•	•				2815945
TOC (Total Organic Carbon)		Test 'N Tube	Direct	10128	100 - 700 mg/L	•	•	•	•				2760445
TOC (Total Organic Carbon)	Yes	TNTplus	Direct Method	10267	30 - 300 mg/L C	•	•	•					TNT811
Toxicity				10017	0 - 100 % Inhibition	•	•	•	•				2597200
Trihalomethanes		Solution	THM Plus	10132	10 - 600 µg/L CHCl <sub>3</sub>	•	•	•					2790800
Vicinal diketones (VDK)		TNTplus	Analogous MEBAK and ASBC	10276	0.015 - 0.5 mg/kg Diacetyl	•	•						TNT819
Volatile Acids		Solution	Esterification	8196	27 - 2800 mg/L Acetic Acid	•	•	•	•				2244700
Volatile Acids	Yes	TNTplus	Esterification	10240	50 - 2,500 mg/L Acetic Acid	•	•	•					TNT872
Zinc	Yes	Solution	Zincon	8009	0.01 - 3.00 mg/L Zn	•	•	•	•	•			2429300





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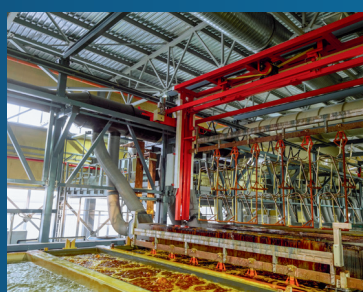
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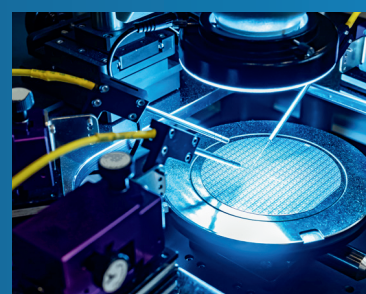
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