



Ensure Water Quality  
For People Around The World



# Water Quality Products

Lab, Process, Online Instruments & More



Hach believes that people in homes, companies and  
industries all deserve safe, reliable water





# About HACH

Hach systems are designed to simplify analysis by offering sophisticated on-line instrumentation, accurate portable laboratory equipment, high-quality prepared reagents, complete easy-to-follow methods, and life-time technical support.

**With 85+ years of research, product innovation & expertise Hach offers cutting edge solutions for water quality & analysis.**

Whatever your industry,  
**Hach has total solutions**  
to solve your specific needs





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# Better Water Quality

## From Municipal to Industrial

From large municipal facilities to microbreweries, Hach's solutions can be found on every continent in virtually any industry or application where water quality matters. Simply put, where there is water quality analysis, there is Hach.

### Municipal

#### Drinking Water

Hach's drinking water solutions include a complete portfolio for lab, online, field, and service applications. Our experts continue to innovate portable and online analyzers to help facilities maintain compliance, cut costs, and streamline operations.

#### Wastewater

Hach wastewater solutions, including our Real-Time Control Systems, nutrient sensors and analyzers, and spectrophotometers, provide the overarching information you need to make compliance and process control improvement easier.

#### More Municipal

- Education
- Military
- Private Water
- Central Labs

### Industrial

#### Food and Beverage

Our food and beverage portfolio, including lab, online, portable, and integrated solutions, delivers on your top priorities: higher product quality, less product loss, and compliance.

#### Power Generation

Paired with local field support, online analytics and lab verification cover the comprehensive parameters needed to help ensure maximum uptime and accurate measurement—promoting plant efficiency and compliance.

#### Chemical

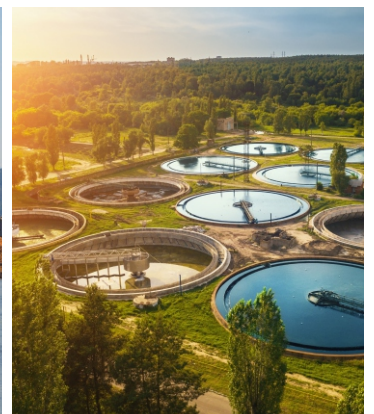
For chemical plants, Hach analytic solutions support environmental performance requirements with online and lab verifications as well as testing solutions that span all critical parameters.

#### More Industrial

- Oil and Gas
- Pulp and Paper

### Engineering and Consulting

Hach's Engineering Design Tool helps engineering consultants make the best design choices and streamline the design process for faster, reliable project plans.







# Laboratory Instruments

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- Meters
- Colorimeters / Spectrophotometers
- Digital Reactors
- Turbidimeters
- TOC Analyzers
- Chemistries / Reagents

# 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.

## Parameter Table

Model	HQ1110 pH/ORP/ 1 Channel	HQ1130 DO/ 1 Channel	HQ1140 EC/TDS/ 1 Channel	HQ2100 Multi/ 1 Channel	HQ2200 Multi/ 2 Channel	HQ4100 Multi/ISE/ 1 Channel	HQ4200 Multi/ISE/ 2 Channel	HQ4300 Multi/ISE/ 1 Channel
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.



## Technical Data

Model	HQ1110 pH/ORP/ 1 Channel	HQ1130 DO/ 1 Channel	HQ1140 EC/TDS/ 1 Channel	HQ2100 Multi/ 1 Channel	HQ2200 Multi/ 2 Channel	HQ4100 Multi/ISE/ 1 Channel	HQ4200 Multi/ISE/ 2 Channel	HQ4300 Multi/ISE/ 1 Channel
Data Memory	5000 data points			10,000 data points		100,000 data points		
Display Type	536x336 Mono-TFT			536x336 Mono-TFT		640x480 Color TFT		
Inputs	1			1	2	1	2	3
Weight (Meter only)	519 g			519 g	541 g	530 g	550 g	570 g
Warranty	EU: 2 years US and other geographies: 1 year					3 years		
Dimensions (H x W x D)	63 mm x 97 mm x 220 mm							
Enclosure Rating	IP67 (with battery compartment installed)							
Data Storage	Automatic in Press to Read Mode and Interval Mode. Manual in Continuous Read Mode.							
Data Export	USB connection to PC or USB storage device (limited to the storage device capacity).							
Software available	Claros							
Display	Up to 3 parameters at a time, dependent on HQ model							
Backlight	Yes							
Lock Function	Continuous / Auto-stabilization ("press to read") / At Interval							
Languages	English, Chinese - Simplified, Spanish, French, German, Italian, Japanese, Turkish, Dutch, Portuguese (PT & BR), Korean, Danish, Swedish, Polish, Norwegian, Hungarian, Greek, Finnish, Czech, Romanian, Croatian, Bulgarian, Slovak, Lithuanian, Estonian, Slovenian, Russian							
Certifications	CE, FCC, ISED, RCM, KC, ETL Verified: US DOE/ NRCan Energy Efficiency, RoHS							
GLP Features	Date; Time; Sample ID; Operator ID, Calibration							
Power Supply	Rechargeable lithium-ion battery 18650 (internal)Class II, USB power adapter: 100 - 240 VAC, 50/60 Hz input; 5 VDC at 2 A USB power adapter output (external)							

## INTELLICAL: Digital electrodes with built-in temperature sensor

Model	Product description	Cable length	Article number	Cable length	Article number
pH	pH combination gel electrode, low maintenance	1 m	PHC10101	3 m	PHC10103
	pH combination refillable electrode	1 m	PHC30101	3 m	PHC30103
	pH combination refillable electrode for low ionic strength	1 m	PHC28101	3 m	PHC28103
Conductivity	Conductivity 4 pole cell, graphite	1 m	CDC40101	3 m	CDC40103
LDO	Luminescent DO sensor	1 m	LDO10101	3 m	LDO10103
LBOD	Luminescent BOD sensor	1 m	LBOD10101	3 m	
ORP	ORP Gel electrode, low maintenance	1 m	MTC10101	3 m	MTC10103
	ORP Refillable electrode	1 m	MTC30101	3 m	MTC30103
F <sup>-</sup>	Fluoride combination ion selective electrode	1 m	ISEF12101	3 m	ISEF12103
NO <sub>3</sub>	Nitrate combination ion selective electrode	1 m	ISENO318101	3 m	ISENO318103
Na <sup>+</sup>	Sodium combination ion selective refillable electrode	1 m	ISENA38101	3 m	ISENA38103
NH <sub>3</sub>	Ammonia combination gas-sensing electrode with refillable outer body	1 m	ISENH318101	3 m	ISENH318103
NH <sub>4</sub>	Ammonium combination ion selective electrode	1 m	ISENH418101	3 m	ISENH418103
Cl <sup>-</sup>	Chloride combination ion selective electrode	1 m	ISECL18101	3 m	ISECL18103

## HQD Benchtop Multi-Parameter Meter

- Flexible benchtop meter makes lab testing of critical water quality parameters more efficient
- One or two input channels for simultaneous measurement of pH, conductivity, dissolved oxygen, BOD, ORP, ammonia, ammonium, fluoride, chloride, sodium, and temperature
- Enhance productivity with an ultra-bright screen and large font size to read results easily
- Internal USB ports simplify data transfer, peripherals



## IntelliCAL LBOD101 Sensor for BOD Measurements

- No membranes to foul or replace, no electrolyte solution to replenish, and fast
- Probes provide ultimate traceability in measurement history (time, operator, sample ID, calibration history, parameter, and probe serial number)
- IntelliCAL digital probes can be moved between meters without the need to re-calibrate or re-enter measurement settings



## BODTrak II Respirometric BOD Apparatus

- Simplify BOD analysis and decreases the total test time
- Greaseless bottle seal, large graphical display and small footprint
- BOD results are made easier to monitor with the large graphic display that continuously update results
- Constant stirring in the bottles supplier additional oxygen to sample, this is faster than dilution method
- The BODTrak II can fit six of 492 mL bottles



## SL250 Single-Port Portable Parallel Analyzer (PPA)

The instrument and corresponding Chemkey® reagents are easy to use regardless of technical expertise

- Accuracy and repeatability at your fingertips
- Perform your tests faster with sample prep eliminated, get the results you need faster.
- A single instrument combines colorimetric and probe-based testing in a field kit that requires fewer accessories.
- No need to handle chemicals.



## Colorimeters / Spectrophotometers

### DR300 Colorimeter

- Single Parameter go-anywhere portable photometer Easy to install,
- Battery operation for a maximum of 5000 tests
- Waterproof instrument IP67 (even better than PCII)
- Larger, better display
- Data connectivity. Bluetooth to Claros
- Bluetooth connectivity currently available only in US, Canada and EU.



### DR 900 Multiparameter Handheld Colorimeter

- Fastest and simplest water testing for the most demanding field environments
- Satisfies your core testing needs
- Field ready in every way possible
- Waterproof, dustproof and field durable
- Ability to test up to 90 methods
- Intuitive user interface
- USB data transfer is available
- Wavelength range: 420 nm, 520 nm, 560 nm, 610 nm



### DR 1900 VIS Spectrophotometer

- Combines ruggedness and portability of field instrument with over 220 of most commonly tested water methods
- Ensure accuracy in the field with wavelength range of 340-800 nm.
- Carry more water methods wherever you need them most
- Water protection is IP67 (water proof)
- Wavelength resolution: 1 nm





## DR 6000™ UV VIS Spectrophotometer

- Your water testing needs, all in one spectrophotometer
- More than 250 kinds of built-in water quality parameters for test method application
- Time-saving automatic method detection and superior accuracy
- High-speed wavelength scanning across the UV and visible spectrum
- Wavelength accuracy:  $\pm 1$  nm in wavelength range 190 - 1100 nm



## DR 3900 Benchtop Spectrophotometer

- Consistently accurate results in simpler testing format
- Built-in applications over 240 kinds of water quality test methods
- Reading mode: transmittance (%), absorbance and concentration
- Wavelength accuracy:  $\pm 1.5$  nm (wavelength range 370 - 1100 nm)
- Wavelength range: 320 - 1100 nm



## Lico Spectral Colorimeter

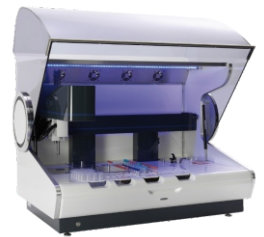
- All important color scales included in one instrument
- Automatic cuvette identification III
- High level of measurement reliability through a comprehensive set of test aids
- Simple integration into the laboratory network through Ethernet connection
- Easy to change cuvette adapter



## AP3900 Laboratory Robot

The AP3900 Laboratory robot is designed for fully automated water analysis, including sample preparation. Even when a digestion is needed. The Basic version contains COD, total P, total N, Ammonium, Nitrate and Nitrite.

- Saves time and costs
- Increases productivity and flexibility
- Highest precision and accuracy due to automated procedures
- Parallel execution of different samples and methods
- Reliable by complete traceability of results



## Digital Reactors

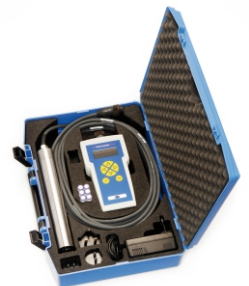
### DRB200 Digital Reactor

- Provides one-key operation that's unique and fast
- Block heats from 20 to 150°C in less than 10 minutes
- Fully insulated heater block with no skin contact
- Accommodates most test vials
- Select dual block model for simultaneous digestions
- Select single / dual block model for simultaneous digestions



### TSS Portable Hand-held Turbidity, Suspended Solids, and Sludge Level System

- Suspended Solids: 0.001 to 400 g/L (1 to 400,000 mg/L)
- Three Parameters in One Instrument
- Multiple Calibration Curves for Convenience
- Easy Sludge Blanket Levels
- Air Bubble Compensation for Accuracy



## Turbidimeters

### 2100Q Portable Turbidimeter

- Easy on-screen assisted calibration and verification
- Accurate for rapidly settling samples
- Convenient data logging
- Optical system for precision in the field
- Resolution: 0.01 NTU (FNU) on lowest range
- Measurement range: 0 - 1000 NTU



### TL23 Series Benchtop Turbidimeters

- The TL23 Series large full color touch screen display and intuitive user interface accelerate setup, calibration and measurement
- The TL23 Series ensures stable readings and accurate analysis by capturing turbidity readings once the device detects sample stability
- With a USB port for easy data export, sample identification for traceability, and self-diagnostics for quality assurance



## TU5 Series Laboratory Turbidimeter

- The platform 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.
- Groundbreaking 360° x 90° Detection Technology
- Matching lab and online results
- Everything about turbidity – faster



## TitraLab AT1000 & KF1000Series

- The TitraLab AT1000 from Hach uses pre-set functions that eliminate complex programming and provide accurate results.
- Eliminates operator interpretation and manual processes with automatic titration to quickly deliver accurate and repeatable results
- Pre-programmed titration methods detect end points and eliminate manual calculations to make results easier to achieve without advanced programming



## TOC Analyzers

### QP1680 Lab TOC Analyzers

- 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.
- The ease of use in drinking water applications and the maintenance concept makes the QP1680 unique on the market.



### QBD1200 + TOC Analyzer

Autosampler for use with QBD1200 Laboratory TOC Analyser

- Custom calibration routine allows any combination of standards
- Save and reload custom calibration routines
- 5 replicate measurements are now available
- Manual measurement screen has graphs displayed
- Export data/user settings in XML format to support LIMS integration



#### Applications

- Drinking Water
- Semiconductor
- Power
- Clear Samples TOC

## Sampler

### AS950 Portable Samplers

- AS950 Portable Sampler is designed for accuracy and convenience
- Field convertible for compact or discrete sampling
- Quickly switch between composite and discrete sampling in the field.
- Configurable for single- or multiple-bottle applications
- Composite container, from 1 to 999 samples and Sample Volume Programmable in 10-mL (0.34 oz) Increments from 10 to 10,000 mL (3.38 oz to 2.6 gal)



### AS950 All-Weather Refrigerated Samplers

- The large full color display and intuitive programming give you access to all your programmable criteria on a single screen
- Utilizes a USB drive to upload and download data and copy programs from one sampler to another
- Designed to endure humid and highly corrosive environments
- Programmable for sample volume in 10-mL increments from 10 to 10,000 mL





# Hach Methods

## Quick Reference Guide

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.



Test	EPA	Method	Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	Prod. No.
Alkalinity, Total (TNTplus)		Colorimetric	10239	25 - 400 mg/L	•	•	•				TNT870
Alkalinity, Total, LR (Chemkey)		Colorimetric	10280	20 - 200 mg/L						•	8636200
Alkalinity, Total, HR (Chemkey)		Colorimetric	10283	200 - 700 mg/L						•	8636100
Aluminum		Aluminon	8012	0.008 - 0.800 mg/L	•	•	•	•	•		2242000
Aluminum		Eriochrome Cyanine R	8326	0.002 - 0.250 mg/L	•	•	•				2603700
Aluminum (TNTplus)		Chromazurol S	10215	0.02 - 0.50 mg/L	•	•	•				TNT848
ANAMMOX Activity (TNTplus)		Cytochrome C	10304	0 - 33 umol/L	•	•	•				TNT882
Ammonia, Nitrogen		Salicylate	8155	0.01 - 0.50 mg/L	•	•	•	•	•		2668000
Ammonia, Nitrogen (TNTplus), ULR	•	Salicylate	10205	0.015 - 2.000 mg/L	•	•	•				TNT830
Ammonia, Nitrogen	•	Nessler	8038	0.02 - 2.50 mg/L	•	•	•				2458200
Ammonia, Nitrogen (Test 'N Tube), LR		Salicylate	10023	0.02 - 2.50 mg/L	•	•	•	•			2604545
Ammonia, Nitrogen (TNTplus), LR	•	Salicylate	10205	1 - 12 mg/L	•	•	•				TNT831
Ammonia, Nitrogen (Test 'N Tube), HR		Salicylate	10031	0.4 - 50.0 mg/L	•	•	•	•			2606945
Ammonia, Nitrogen (TNTplus), HR	•	Salicylate	10205	2 - 47 mg/L	•	•	•				TNT832
Ammonia, Nitrogen (TNTplus), UHR	•	Salicylate	10205	47 - 130 mg/L	•	•	•				TNT833
Ammonia, Nitrogen (TNTplus), UHR+	•	Salicylate	10301	100 - 1800 mg/L	•	•	•				TNT834
Ammonia, Free (Chemkey)		Indophenol	10269	0.05 - 0.50 mg/L						•	9429600
Ammonia, Total (Chemkey)		Indophenol	10268	0.05 - 1.50 mg/L						•	9425200
Arsenic	•	Silver Diethyldithiocarbamate	8013	0.020 - 0.200 mg/L	•	•	•				—
Barium		Turbidimetric	8014	2 - 100 mg/L	•	•	•				1206499
Benzotriazole		UV Photolysis	8079	1.0 - 16.0 mg/L	•	•	•	•			2141299
Boron (TNTplus)		Azomethine-H	10274	0.05 - 2.50 mg/L	•	•	•				TNT877
Boron		Carmine	8015	0.2 - 14.0 mg/L	•	•	•				—
Bromine		DPD	8016	0.05 - 4.50 mg/L	•	•	•	•	•		2105669
Bromine (AccuVac)		DPD	8016	0.05 - 4.50 mg/L	•	•	•	•	•		2503025
Cadmium		Dithizone	8017	0.7 - 80.0 µg/L	•	•	•				2242200
Cadmium (TNTplus)		Cadion	10217	0.02 - 0.30 mg/L	•	•	•				TNT852
Carbohydrazide		Iron Reduction	8140	5 - 600 µg/L	•	•	•	•			2446600
Chloramine, Mono, LR		Indophenol	10171, 10200	0.04 - 4.50 mg/L	•	•	•	•	•		2802246
Chloramine, Mono (Test 'N Tube), HR		Indophenol	10172	0.1 - 10.0 mg/L	•	•	•				2805145
Chloramine, Mono (Chemkey)		Indophenol	10270	0.04 - 4.00 mg/L						•	9429400
Chloride		Mercuric Thiocyanate	8113	0.1 - 25.0 mg/L	•	•	•				2319800
Chloride (TNTplus)		Mercuric Thiocyanate	10291	1 - 70 mg/L Cl 70 - 1000 mg/L Cl	•	•	•				TNT879
Chlorine, Free		Indophenol	10241	0.04 - 4.50 mg/L	•	•	•	•			—
Chlorine, Free	•	DPD	8021	0.02 - 2.00 mg/L	•	•	•	•	•		2105569
Chlorine, Free (AccuVac)	•	DPD	8021	0.02 - 2.00 mg/L	•	•	•	•	•		2502025
Chlorine, Free (Pour-Thru Cell)		DPD Rapid Liquid	10059	0.02 - 2.00 mg/L	•	•	•				2556900
Chlorine, Free (TNTplus)	•	DPD	10231	0.05 - 2.00 mg/L	•	•	•				TNT866
Chlorine, Free (Test 'N Tube)		DPD	10102	0.09 - 5.00 mg/L	•	•	•				2105545
Chlorine, Free, MR	•	DPD	10245	0.05 - 4.00 mg/L	•	•	•	•	•		1407099
Chlorine, Free, HR	•	DPD	10069	0.1 - 10.0 mg/L	•	•	•	•	•		1407099
Chlorine, Free & Total (TNTplus)	•	DPD	10232	0.05 - 2.00 mg/L	•	•	•				TNT867
Chlorine, Free (Chemkey)	•	DPD	10260	0.04 - 4.00 mg/L						•	9429000
Chlorine, Total (Pour-Thru Cell), ULR	•	DPD	8370, 10014	2 - 500 µg/L	•	•	•				2563000
Chlorine, Total	•	DPD	8167	0.02 - 2.00 mg/L	•	•	•	•	•		2105669
Chlorine, Total (AccuVac)	•	DPD	8167	0.02 - 2.00 mg/L	•	•	•	•	•		2503025
Chlorine, Total (Pour-Thru Cell)		DPD Rapid Liquid	10060	0.02 - 2.00 mg/L	•	•	•				2557000
Chlorine, Total (Test 'N Tube)		DPD	10101	0.09 - 5.00 mg/L	•	•	•				2105645
Chlorine, Total, MR	•	DPD	10250	0.05 - 4.00 mg/L	•	•	•	•	•		1406499

Test	EPA	Method	Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	Prod. No.
Chlorine, Total, HR		DPD	10070	0.1 - 10.0 mg/L	•	•	•	•	•		1406499
Chlorine, Total (Chemkey)	•	DPD	10260	0.04 - 10.00 mg/L						•	9429100
Chlorine Demand/Requirement	•	DPD	10223	Multiple Ranges	•	•	•	•	•		—
Chlorine Dioxide, DPD	•	DPD/Glycine	10126	0.04 - 5.00 mg/L	•	•	•	•	•		2770900
Chlorine Dioxide, LR		Chlorophenol Red	8065	0.01 - 1.00 mg/L	•	•	•				2242300
Chlorine Dioxide, MR		Direct Reading	8345	1 - 50 mg/L	•	•	•	•			—
Chlorine Dioxide, HR		Direct Reading	8138	5 - 1000 mg/L	•	•	•				—
Chromium, Hexavalent	•	1,5 Diphenylcarbohydrazide	8023	0.010 - 0.700 mg/L	•	•	•	•			1271099
Chromium, Hexavalent and Total (TNTplus)	• <sup>1</sup>	1,5 Diphenylcarbohydrazide	10218, 10219	0.03 - 1.00 mg/L	•	•	•				TNT854
Chromium, Total		Alkaline Hypobromite Oxidation	8024	0.01 - 0.70 mg/L	•	•	•	•			2242500
Cobalt		PAN	8078	0.01 - 2.00 mg/L	•	•	•				2651600
COD, ULR		Dichromate	8000	0.7 - 40.0 mg/L	•	•	•				2415825
COD, LR	•	Dichromate	8000	3 - 150 mg/L	•	•	•	•			2125825
COD, HR	•	Dichromate	8000	20 - 1,500 mg/L	•	•	•	•			2125925
COD, HR+		Dichromate	8000	200 - 15,000 mg/L	•	•	•	•			2415925
COD		Manganese III	10067	30 - 1000 mg/L	•	•	•	•			2623425
COD, Mercury-Free (TNTplus), HR		Dichromate	10236	25 - 1000 mg/L	•	•	•				TNT825
COD in Salt Water (TNTplus), LR		Dichromate	10299	7 - 70 mg/L	•	•	•				TNT815
COD in Salt Water (TNTplus), HR		Dichromate	10299	70 - 700 mg/L	•	•	•				TNT816
COD (TNTplus), ULR		Dichromate	10211	1 - 60 mg/L	•	•	•				TNT820
COD (TNTplus), LR	•	Dichromate	8000	3 - 150 mg/L	•	•	•				TNT821
COD (TNTplus), HR	•	Dichromate	8000	20 - 1500 mg/L	•	•	•				TNT822
COD (TNTplus), UHR		Dichromate	10212	250 - 15,000 mg/L	•	•	•				TNT823
COD (TNTplus) UHR+		Dichromate	10212	5,000 - 60,000 mg/L	•	•	•				TNT824
Color <sup>5</sup>		ADMI Weighted Ordinate	10048	3 - 1000 units	•	•					—
Color, True and Apparent		Platinum-Cobalt	8025	15 - 500 units	•	•	•	•			—
Color, True and Apparent, LR		Platinum-Cobalt	8025	3 - 500 units	•	•					—
Copper, LR		Porphyrin	8143	1 - 210 µg/L	•	•	•	•			2603300
Copper	•	Bicinchoninate	8506	0.04 - 5.00 mg/L	•	•	•	•			2105869
Copper (AccuVac)		Bicinchoninate	8026	0.04 - 5.00 mg/L	•	•	•	•			2504025
Copper (TNTplus) <sup>2</sup>		Bathocuproine	10238	0.1 - 8.0 mg/L	•	•	•				TNT860
Copper (Chemkey)	•	Bicinchoninate	10272	0.06 - 5.00 mg/L						•	9429200
Cyanide		Pyridine-Pyrazalone	8027	0.002 - 0.240 mg/L	•	•	•	•			2430200
Cyanide (TNTplus)	•	Pyridine barbituric acid	10265	0.01 - 0.6 mg/L CN	•	•	•				TNT862
Cyanuric Acid		Turbidimetric	8139	5 - 50 mg/L		•	•	•			246066
DEHA (Diethylhydroxylamine)		Iron Reduction	8140	3 - 450 µg/L	•	•	•	•			2446600
Detergents (Surfactants)		Crystal Violet	8028	0.002 - 0.275 mg/L	•	•	•	•			2446800
Dissolved Oxygen (AccuVac), LR		Indigo Carmine	8316	0.04 - 4.50 mg/L	•	•	•	•			2501025
Dissolved Oxygen (AccuVac), HR		HRDO	8166	0.3 - 15.0 mg/L	•	•	•	•	•		2515025
Dissolved Oxygen (AccuVac), UHR		Ultra High Range	8333	1.0 - 40.0 mg/L	•	•	•				2515025
Erythorbic Acid (Isoascorbic Acid)		Iron Reduction	8140	13 - 1500 µg/L	•	•	•	•			2446600
Fluoride, Arsenic Free	• <sup>3,4</sup>	SPADNS 2	10225	0.02 - 2.00 mg/L	•	•	•	•			2947549
Fluoride, Arsenic Free (AccuVac)	• <sup>3,4</sup>	SPADNS 2	10225	0.02 - 2.00 mg/L	•	•	•	•			2527025
Fluoride, Arsenic Free (TNTplus)	• <sup>3</sup>	SPADNS 2	10225	0.1 - 2.5 mg/L	•	•	•				TNT878
Fluoride	• <sup>4</sup>	SPADNS	8029	0.02 - 2.00 mg/L	•	•	•	•			44449
Fluoride (AccuVac)	• <sup>4</sup>	SPADNS	8029	0.02 - 2.00 mg/L	•	•	•	•			2506025
Formaldehyde		MBTH	8110	3 - 500 µg/L	•	•	•				2257700
Formaldehyde (TNTplus)		Acetylacetone	10295	0.5 - 10 mg/L H <sub>2</sub> CO	•	•	•				TNT871
Hardness, Total, ULR		Chlorophosphonazo Colorimetric	8374	8 - 1000 µg/L	•	•	•				2603100
Hardness, Total, ULR (Pour-Thru Cell)		Chlorophosphonazo Rapid Liquid	8167	4 - 1000 µg/L	•	•	•				—
Hardness, Ca & Mg		Calmagite Colorimetric	8030	0.05 - 4.00 mg/L	•	•	•	•			2319900
Hardness, Total, LR (Chemkey)		Calmagite Colorimetric	10284	3 - 100 mg/L						•	8636400
Hardness, Total, HR (Chemkey)		Calmagite Colorimetric	10285							•	8638400
Hardness, Water (TNTplus)		Metalphthalein	10293	20 - 350 mg/L as CaCO <sub>3</sub> 5 - 100 mg/L Ca 3 - 50 mg/L Mg	•	•	•				TNT869
Hydrazine		p-Dimethylaminobenzaldehyde	8141	4 - 600 µg/L	•	•	•	•			179032

<sup>1</sup>EPA approved for Cr6+ only. <sup>2</sup>As listed, test determines soluble metal. Order Metals Prep Set TNT890 to determine total metal.

<sup>3</sup>Per 40 CFR 136.6 Method Modification and Flexibility. <sup>4</sup>Not EPA accepted for drinking water using the DR900 colorimeter.

<sup>5</sup>Others color scale available: CIE L\*a\*b, Hazen, Iodine, Gardner, Yellowness & EBC (Z).

Test	EPA	Method	Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	Prod. No.
Hydrogen Peroxide (H <sub>2</sub> O <sub>2</sub> ) <sup>1</sup>		DPD	10290	0.05 - 5.00 mg/L	•	•	•				1406499
Hydroquinone		Iron Reduction	8140	9 - 1000 µg/L	•	•	•	•			2446600
International Bitterness Units (TNTplus)		Analogous MEBAK and ASBC	10288	≥ 2 BE	•	•					TNT817
Iodine DPD		DPD	8031	0.07 - 7.00 mg/L	•	•	•				2105669
Iodine DPD (AccuVac)		DPD	8031	0.07 - 7.00 mg/L	•	•	•				2503025
Iron (TNTplus) <sup>2</sup>	•	Phenanthroline	10229	0.2 - 6.0 mg/L	•	•	•				TNT858
Iron		FerroZine	8147	0.009 - 1.400 mg/L	•	•	•	•			230166
Iron (Pour-Thru Cell)		FerroZine Rapid Liquid	8147	0.009 - 1.400 mg/L	•	•	•				230149
Iron, Ferrous		1, 10 Phenanthroline	8146	0.02 - 3.00 mg/L	•	•	•	•			103769
Iron, Total		FerroMo	8365	0.01 - 1.80 mg/L	•	•	•	•			2544800
Iron, Total		TPTZ	8112	0.012 - 1.800 mg/L	•	•	•	•	•		2608799
Iron, Total	•	FerroVer	8008	0.02 - 3.00 mg/L	•	•	•	•	•		2105769
Iron, Total (AccuVac)	•	FerroVer	8008	0.02 - 3.00 mg/L	•	•	•	•	•		2507025
Iron, Total (5-cm Sample Cell)		1,10 Phenanthroline	10306	0.01 - 1.00 mg/L	•	•					HPT251
Iron, Total Dissolved (Chemkey)		1,10 Phenanthroline	10281	0.05 - 3.00 mg/L						•	8636000
Isoascorbic Acid (Erythorbic Acid) (ISA)		Iron Reduction	8140	13 - 1500 µg/L	•	•	•	•			2446600
Lead		LeadTrak Fast Column Extraction	8317	5 - 150 µg/L	•	•	•				2375000
Lead	•	Dithizone	8033	3 - 300 µg/L	•	•	•				2243100
Lead (TNTplus) <sup>2</sup>		PAR	10216	0.1 - 2.0 mg/L	•	•	•				TNT850
Manganese, LR		PAN	8149	0.006 - 0.700 mg/L	•	•	•	•			2651700
Manganese, LR		PAN	10286	0.005 - 0.500 mg/L	•	•	•				HPT291
Manganese, HR		Periodate Oxidation	8034	0.1 - 20.0 mg/L	•	•	•	•	•		2430000
Magnesium (TNTplus)		Metaphthalain	10292	0.5 - 50 mg/L Mg	•	•	•				TNT849
Mercury		Cold Vapor Mercury Concentration	10065	0.1 - 2.5 µg/L	•	•	•				2658300
Methylethylketoxime (MEKO)		Iron Reduction	8140	15 - 1000 µg/L	•	•	•	•			2446600
Molybdenum, Molybdate, LR		Ternary Complex	8169	0.02 - 3.00 mg/L	•	•	•	•	•		2449400
Molybdenum, Molybdate, HR		Mercaptoacetic Acid	8036	0.2 - 40.0 mg/L	•	•	•	•			2604100
Nickel <sup>3</sup>		PAN	8150	0.006 - 1.000 mg/L	•	•	•	3			2651600
Nickel	•	Heptoxime	8037	0.02 - 1.80 mg/L	•	•	•				2243500
Nickel (TNTplus) <sup>2</sup>		Dimethylglyoxime	10220	0.1 - 6.0 mg/L	•	•	•				TNT856
Nitrate, Nitrogen, LR		Cadmium Reduction	8192	0.01 - 0.50 mg/L	•	•	•	•			2429800
Nitrate, Nitrogen (TNTplus), LR	•	Dimethylphenol	10206	0.23 - 13.5 mg/L	•	•	•				TNT835
Nitrate, Nitrogen, MR		Cadmium Reduction	8171	0.1 - 10.0 mg/L	•	•	•	•			2106169
Nitrate, Nitrogen (AccuVac), MR		Cadmium Reduction	8171	0.1 - 10.0 mg/L	•	•	•	•	•		2511025
Nitrate, Nitrogen		UV Screening	10049	0.1 - 10.0 mg/L	•						—
Nitrate, Nitrogen (Test 'N Tube), HR		Chromotropic Acid	10020	0.2 - 30.0 mg/L	•	•	•	•			2605345
Nitrate, Nitrogen, HR		Cadmium Reduction	8039	0.3 - 30.0 mg/L	•	•	•	•	•		2106169
Nitrate, Nitrogen (AccuVac), HR		Cadmium Reduction	8039	0.3 - 30.0 mg/L	•	•	•	•	•		2511025
Nitrate, Nitrogen (TNTplus), HR	•	Dimethylphenol	10206	5 - 35 mg/L	•	•	•				TNT836
Nitrite, Nitrogen, LR	•	Diazotization	8507	0.002 - 0.300 mg/L	•	•	•	•			2107169
Nitrite, Nitrogen (Test 'N Tube), LR		Diazotization	10019	0.003 - 0.500 mg/L	•	•	•	•			2608345
Nitrite, Nitrogen (TNTplus), LR	•	Diazotization	10207	0.015 - 0.600 mg/L	•	•	•				TNT839
Nitrite, Nitrogen (TNTplus), HR	•	Diazotization	10237	0.6 - 6.0 mg/L	•	•	•				TNT840
Nitrite, Nitrogen (TNTplus), UHR	•	Diazotization	10296	2 - 90 mg/L	•	•	•				TNT841
Nitrite, Nitrogen, HR		Ferrous Sulfate	8153	2 - 250 mg/L	•	•	•	•			2107569
Nitrite, Nitrogen (Chemkey)		Diazotization	10271	0.005 - 0.600 mg/L						•	9429300
Nitrogen, Ammonia (see Ammonia, Nitrogen)											
Nitrogen, Total (Test 'N Tube), LR		Persulfate Digestion	10071	0.5 - 25.0 mg/L	•	•	•	•			2672245
Nitrogen, Total (TNTplus), LR		Persulfate Digestion	10208	1 - 16 mg/L	•	•	•				TNT826
Nitrogen, Total (TNTplus), HR		Persulfate Digestion	10208	5 - 40 mg/L	•	•	•				TNT827
Nitrogen, Total (Test 'N Tube), HR		Persulfate Digestion	10072	2 - 150 mg/L	•	•	•	•			2714100
Nitrogen, Total (TNTplus), UHR		Persulfate Digestion	10208	20 - 100 mg/L	•	•	•				TNT828
Nitrogen, Total Inorganic (TIN) (Test 'N Tube)		Titanium Trichloride Reduction	10021	0.2 - 25.0 mg/L	•	•	•	•			2604945
Nitrogen, Simplified TKN (TNTplus)	•	s-TKN	10242	0 - 16 mg/L	•	•	•				TNT880
Nitrogen, Total Kjeldahl (TKN)		Nessler	8075	1 - 150 mg/L	•	•	•	•			2495300
Organic Carbon, Total (See TOC)											—
Organic Constituents, UV-Absorbing (UV-254)		Direct Reading	10054	Varies-Units Abs/cm	•						—
Oxygen Demand, Chemical (See COD)											—
Oxygen, Dissolved (See Dissolved Oxygen)											—

<sup>1</sup>Requires Product. No. 193332 & 1456842. <sup>2</sup>As listed, test determines soluble metal. Order Metals Prep Set TNT890 to determine total metal.

<sup>3</sup>Nickel PAN method reagent set for DR 900 is Prod. No. 2242600.



Test	EPA	Method	Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	Prod. No.
Oxygen Scavengers (See specific compounds)											—
Ozone (AccuVac), LR		Indigo	8311	0.01 - 0.25 mg/L	•	•	•	•	•		2516025
Ozone (AccuVac), MR		Indigo	8311	0.01 - 0.75 mg/L	•	•	•	•	•		2517025
Ozone (AccuVac), HR		Indigo	8311	0.01 - 1.50 mg/L	•	•	•	•			2518025
Peracetic Acid (PAA) <sup>1</sup>		DPD	10290	0.10 - 10.00 mg/L	•	•	•				1406499
Peracetic Acid (PAA) (Chemkey)		DPD	10297	0.04 - 50.00 mg/L						•	8635200
pH (Chemkey)		Colorimetric Phenol Red	10298	10298 6.3 - 9.0 units						•	9759000
pH		Colorimetric Phenol Red	10076	6.5 - 8.5 units				•			2657512
Phenols	•	4-Aminoantipyrine	8047	0.002 - 0.200 mg/L	•	•	•				2243900
Phenols (TNTplus)		4-Aminoantipyrine	10266	5 - 150 mg/L	•	•	•				TNT868
Phosphonates		Persulfate UV Oxidation	8007	0.02 - 125.0 mg/L	•	•	•	•			2429700
Phosphorus, Reactive	•	PhosVer 3	8048	0.02 - 2.50 mg/L	•	•	•	•	•		2106069
Phosphorus, Reactive (AccuVac)	•	PhosVer 3	8048	0.02 - 2.50 mg/L	•	•	•	•	•		2508025
Phosphorus, Reactive (Test 'N Tube)	•	PhosVer 3	8048	0.06 - 5.00 mg/L	•	•	•	•			2742545
Phosphorus, Reactive		Amino Acid	8178	0.23 - 30.00 mg/L	•	•	•	•			2244100
Phosphorus, Reactive (5-cm Sample Cell)		Ascorbic Acid	10307	0.01 - 0.50 mg/L	•	•					HPT487
Phosphate, LR (Chemkey)		Ascorbic Acid	10279	0.20 - 4.00 mg/L						•	8636600
Phosphate, HR (Chemkey)		Ascorbic Acid	10282	2.0 - 30.0 mg/L						•	8636500
Phosphorus, Reactive		Molybdovanadate	8114	0.3 - 45.0 mg/L	•	•	•	•			2076032
Phosphorus, Reactive (Test 'N Tube), HR		Molybdovanadate	8114	1.0 - 100.0 mg/L	•	•	•	•			2767345
Phosphorus, Reactive (Pour-Thru Cell), HR		Molybdovanadate Rapid Liquid	8114	0.3 - 45.0 mg/L	•	•	•				2076049
Phosphorus, Reactive (Pour-Thru Cell), LR	•	Ascorbic Acid Rapid Liquid	10055	19 - 3000 µg/L	•	•	•				2678600
Phosphorus, Reactive (TNTplus)		Molybdovanadate	10214	5.0 - 90.0 mg/L	•	•	•				TNT846
Phosphorus, Acid Hydrolyzable (Test 'N Tube)		PhosVer 3 with Acid Hydrolysis	8180	0.06 - 3.50 mg/L	•	•	•	•			2742745
Phosphorus, Total (Test 'N Tube)	•	PhosVer 3 with Acid Persulfate Digestion	8190	0.06 - 3.50 mg/L	•	•	•	•			2742645
Phosphorus, Total (Test 'N Tube), HR		Molybdovanadate with Acid Persulfate Digestion	10127	1.0 - 100.0 mg/L	•	•	•	•			2767245
Phosphorus, Reactive and Total (TNTplus), LR	•	Ascorbic Acid	10209, 10210	0.15 - 4.50 mg/L	•	•	•				TNT843
Phosphorus, Reactive and Total (TNTplus), HR	•	Ascorbic Acid	10209, 10210	1.5 - 15.0 mg/L	•	•	•				TNT844
Phosphorus, Reactive and Total (TNTplus), UHR	•	Ascorbic Acid	10209, 10210	6 - 60 mg/L	•	•	•				TNT845
Potassium		Tetraphenylborate	8049	0.1 - 7.0 mg/L	•	•	•				2459100
Quaternary Ammonium Compounds		Direct Binary Complex	8337	0.2 - 5.0 mg/L	•	•	•				2459200
Silica (Pour-Thru Cell), ULR		Heteropoly Blue	8282	3 - 1000 µg/L	•	•	•				2553500
Silica (Pour-Thru Cell), ULR		Heteropoly Blue Rapid Liquid	8282	3 - 1000 µg/L	•	•	•				2678500
Silica, LR		Heteropoly Blue	8186	0.010 - 1.600 mg/L	•	•	•	•			2459300
Silica, HR		Silicomolybdate	8185	1 - 100 mg/L	•	•	•	•			2429600
Silver		Colorimetric	8120	0.02 - 0.70 mg/L							
Sulfate	•	SulfaVer 4	8051	2 - 70 mg/L	•	•	•	•			2106769
Sulfate (TNTplus), LR		Turbidimetric	10227	40 - 150 mg/L	•	•	•				TNT864
Sulfate (TNTplus), HR		Turbidimetric	10227	150 - 900 mg/L	•	•	•				TNT865
Sulfide	•	Methylene Blue	8131	5 - 800 µg/L	•	•	•	•			2244500
Sulfide (TNTplus)	•	Dimethyl-p-phenylenediamine	10294	0.1 - 2.0 mg/L	•	•	•				TNT861
Surfactants (See Detergents)											—
Surfactants, Anionic (TNTplus)		Methylene Blue (MBA)	8131	0.1 - 4.0 mg/L	•	•	•				TNT874
Surfactants, Cationic (TNTplus)		Cetyltrimethylammonium Bromide	10305	0.2 - 2.0 mg/L	•	•	•				TNT885
Surfactants, Nonionic LR (TNTplus)		TBPE	10275	0.2 - 6.0 mg/L as Triton x 100	•	•	•				TNT875
Surfactants, Nonionic HR (TNTplus)		TBPE	10275	6 - 200 mg/L as Triton X-100	•	•	•				TNT876
Suspended Solids		Photometric	8006	5 - 750 mg/L	•	•	•	•			—
Tannin & Lignin		Tyrosine	8193	0.1 - 9.0 mg/L	•	•	•	•			2244600
TKN (See Nitrogen, Simplified TKN and Nitrogen, Total Kjeldahl)											

<sup>1</sup>Requires Product. No. 193332 & 1456842.

Test	EPA	Method	Number	Range	DR6000	DR3900	DR1900	DR900	DR300	SL1000	Prod. No.
TOC (Total Organic Carbon), LR		Direct Method	10129	0.3 - 20.0 mg/L	•	•	•	•			2760345
TOC - Total Organic Carbon (TNTplus), LR	•	Direct Method	10267	1.5 - 30 mg/L	•	•	•				TNT810
TOC (Total Organic Carbon), MR		Direct Method	10173	15 - 150 mg/L	•	•	•	•			2815945
TOC (Total Organic Carbon), HR		Direct Method	10128	100 - 700 mg/L	•	•	•	•			2760445
TOC - Total Organic Carbon (TNTplus), HR	•	Direct Method	10267	30 - 300 mg/L	•	•	•				TNT811
Tolytriazole		UV Photolysis	8079	1.0 - 20.0 mg/L	•	•	•	•			2141299
Toxicity		ToxTrak	10017	0 - 100 % inhibition	•	•	•	•			2597200
TPH in Soil <sup>1</sup>		Immunoassay	10050	2 - 20 ppm, threshold	•	•	•				2774300
TPH in Water		Immunoassay	10050	2 - 20 ppm, threshold	•	•	•				2774300
Trihalomethanes (THM)		THM Plus	10132	10 - 600 µg/L	•	•	•				2790800
Trihalomethane Formation Potential (THMFP)		THM Plus	10224	10 - 600 µg/L	•	•	•				2790800
Vicinal Diketone - VDK (TNTplus)		Analogous MEBAK and ASBC	10276	0.015 - 0.5 mg/kg	•	•					TNT819
Volatile Acids		Esterification	8196	27 - 2800 mg/L	•	•	•	•			2244700
Volatile Acids (TNTplus)		Esterification	10240	50 - 2500 mg/L	•	•	•				TNT872
Zinc	•	Zincon	8009	0.01 - 3.00 mg/L	•	•	•	•	•		2429300

<sup>1</sup>Requires Soil Extraction Kit. Please order Prod. No. 2775100.

## Online / Process Instruments

### Organic & Nutrients

#### UVAS sc Sensor, 1 mm, 2 mm or 5 mm, with sc4500 Controller

Continuous UV 254 Absorbance/Transmittance measurements with the UVAS sc Sensor can be used to protect plant treatment processes from high organic loads or for surrogate BOD, COD, and TOC measurements, with repeatable, accurate measurement.

- On-line analysis allows treatment plants to operate more efficiently
- Flow through design with no sample chamber and self-cleaning wipers



#### A-ISE sc

A-ISE sc Low cost ISE Ammonium probe (immersion) with RFID, 10 m cable

- Cost-Effective Trending Information
- Minimal Maintenance with Simple Cartridge Replacement
- Easy to perform, fail-safe calibration corrections compensate for naturally occurring calibration drift in ISE instruments



#### HACH BioTector TOC Analyzer

- Provides low maintenance
- Self-cleaning technology prevents Clogging and Sample Contamination
- Analyze without filtering; for measuring of clean and dirty water
- Recommended Application: Industrial, Wastewater, Food & Beverage, Mining, Airports, chemical, petrochemical and Refining.



#### Amtax sc

Amtax sc Ammonium Analyzer, 0.05-20 mg/L NH<sub>4</sub>-N, One Channel Continuous Sample, 115-230 VAC

- Hach's Amtax Ammonium Analyzer provides a wide measurement range for a variety of wastewater applications.
- Low detection limit of 0.05 mg/L.
- Environmentally controlled for rugged, outdoor installations. Designed specifically for easy installation at the measurement point.
- Automatic cleaning and calibration every day.
- Easy access to reagents and wear parts.



## N-ISE sc

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

- Carries out continuously direct measurements using an ion-selective electrode.
- The special feature of the probe is the Cartrical technology. This provides reliable measured values and considerably reduced maintenance time and costs in comparison with conventional ISE probes..
- Trustable results for ammonium and nitrate
- Easy handling with Cartrical cartridge plus
- Simple and intuitive operation
- Always under control



## AN-ISE

AN-ISE sc Low cost ISE combination Ammonium and Nitrate probe (immersion) with RFID, 10 m cable

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

- Accurate results for ammonium and nitrate
- Easy handling with Cartrical cartridge plus
- Simple and intuitive operation
- Always under control
- Rely on Hach's application know how



## Degas cation conductivity panel (DCCP)

DCCP is used by power plants to verify that conductivity meets plant specifications and warranty conditions for the turbine manufacturer during plant startups and/or blowdowns, and before ramping up power to peak load.



## NT3 series UV Nitrate sensor

- No time for downtime
- Proven nitrate measurements made more accessible.
- NT3100sc uses internal smart sensors to proactively alert you of potential measurement.
- The NT3100sc UV nitrate sensor features improved accuracy and low-level detection to help you optimize your plant performance.
- 3 different path lengths to fit your measurement ranges and turbidity compensation needs.



## Phosphax sc

Phosphax sc Phosphate Analyzer, 0.05-15 mg/L PO<sub>4</sub>-P, One Channel Continuous Sample, 115-230 VAC

- Multiple measurement ranges for a variety of wastewater applications
- Low cost of operation with proven yellow method
- Generate actionable insights from measurement data
- Easy installation at the measurement point
- Low maintenance



## Controller

### SC4500 Controller

- Multi-channel controller operate either 1 or 2 sensors reducing inventory holding cost provides maximum versatility
- Password protected USB reader offers simple solution for data download and transfer
- One controller gives you numerous communication options.
- Technologies are advancing rapidly, providing new levels of convenience, accuracy and efficiency.



### SC Controller

SC1000 Multi-parameter Universal Controller Display and Probe Module

- Color touch-screen display
- Accepts 2-8 sensors or up to 2 Analyzers combination
- Additional relays and analog inputs and outputs can be added by networking a second probe module or optional DIN -rail communication modules
- Advanced and flexible communication options features additional
- The Hach SC1000 Display Module is available with GSM/GPRS, Ethernet, and TCP/IP capability





## CL17sc Analyzer

Free or Total Chlorine Confidence. From the Global Leader in Chlorine Analysis.

### Enhanced Connectivity

Compatibility with the SC controller platform, giving users more flexibility to store, transfer, and interact with their process chlorine data.

### Maintenance Made Easy

Reduces your routine maintenance touch time with simplified tubing replacement and step-by-step, on-screen workflows.

### Flow Sensor

A built-in flow meter to notify you when there's an unexpected change in flow that could compromise your measurements. 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.



## CLF10 sc • CLT10 sc

CLF10 sc Free Chlorine Sensor, SC200 Controller and Stainless Steel Panel with pH/Differential Sensor

Hach's CLF10 sc and CLT10 sc provide online amperometric solutions for real-time analysis of free or total chlorine in disinfection applications.

- The CLF10 sc Free Chlorine Analyzer and CLT10 sc Total Chlorine Analyzer are based on amperometric technology and is fully compatible with all Hach digital controllers.
- The CLF10 sc can be used in most municipal and industrial applications and is best utilized where waste stream management is a constraint.
- EPA-approved Free or Total Chlorine Analysis
- No Reagents to Replace, No Waste Stream
- Chlorine Analysis Made Easy



## Ultra Low Range CL17sc Colorimetric Chlorine Analyzer

- New Ultra-Low Range CL17sc provides better accuracy in the parts-per-billion measurement range.
- With upgraded features like a flow meter, colorimeter window, multicolor status light, and predictive diagnostic software, you know your instrument is operating as intended.



### \*Accuracy at Lower Range

With accuracy in the parts-per-billion measurement range, you can take control of your decoloring on process, protect your assets from chlorine damage, and meet strict residual chlorine limits.

### \*Cumulative Chlorine Counter™

Understand the true impact of chlorine exposure on downstream assets over time by tracking chlorine exposure in ppm-hours.

### \*Parts per Billion Reading

Eliminate reading confusion when process adjustments and chlorine discharge require ultra low range control.

## AMC / Silica Analyzer 5500 sc

5500sc Silica Analyzer, 1 Channel, Reagents included

- 90 Days of Continuous Run Time
- Save Time on Maintenance
- Clean, Fast and Easy Reagent Change
- Verify Easily with Hach Lab Products So You Don't Waste Time Second-guessing



## Analyzers

## NA5600 sc

NA5600sc Sodium Analyzer, 1-channel, with Autocalibration, panel mount

### 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.
- **Avoid Downtime** : Predictive diagnostic tools, including Hach's proprietary Prognosis technology, warning LEDs, and high visibility notification screens let you avoid unplanned downtime.

## SP510 Hardness Analyzer (10 mg/L trip point)

Maximize your softener cycle time and minimize your regeneration cost.

The SP510 Analyzer makes your water softening system more efficient and less costly. It's reliable, simple and accurate with automated calibration and continuous monitoring.

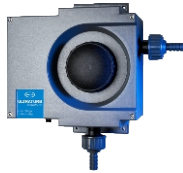


- Continuous Hardness Detection
- Simple to Read and Use
- Rugged, lightweight, and self-contained
- Making Water Softening Systems Cost-efficient
- Low Maintenance Requirements

## ULTRATURB seawater sc Turbidimeter

Suitable for low to medium turbidity applications.

- Large measuring range—0 to 1,000 NTU
- Self-cleaning sample chamber option
- Stable/long lasting light source with IR ratio technology
- Updated for desalination applications
- Corrosion resistant to salinity up to 65 g/L



## Surface Scatter 7 sc

- The Surface Scatter 7 sc High Range Turbidimeter offers superior performance across a measurement range of 0 to 9999 NTU.
- This design minimizes sensitivity loss due to high turbidity samples; in fluids with high loads of suspended solids the design makes sample cell cleaning and replacement unnecessary.
- Surface Scatter 7 sc HST is designed to monitor samples with temperatures of up to 70°C.
- Its innovative moist air removal system is useful where a difference between the sample temperature and the ambient temperature causes condensation and fogging.



## Solitax® sc

- Designed for the accurate determination of turbidity and suspended solids
- Accordance with DIN EN ISO.
- Using the infrared duo scattered light method
- Solitax sc sensors can be connected to all SC controllers
- Self-cleaning wiper



## TU5 Series Turbidimeter

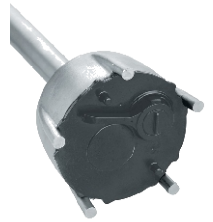
- Continuously flowing sample flows through with groundbreaking 360° x 90° detection™ Technology
- Everything about turbidity - faster
- Maintenance and cleaning is easy
- Matching lab and online results
- Recommended Applications: Drinking, Pure and Industrial Water
- Measurement range:
  - EPA version 0 to 700 NTU
  - ISO version 0 to 1000 NTU



## SONATAX sc PROBE

Low-maintenance sludge level monitor delivers superior accuracy.

- For a continuous ultrasonic measurement of sludge blanket level
- Reduced maintenance with innovative wiper design
- Superior accuracy with automatic frequency adjustment
- Digitized probe, temperature compensation, and position sensor ensure reliability
- Visual performance indicator enhances troubleshooting
- The digital ultrasonic probe Sonatux sc continuously measures the sludge level or the sludge height.



## TSS sc

- Made of highly polished stainless steel or titanium
- Two channel 90° scattered light turbidity method
- Accordance with DIN EN ISO 7027.
- Integrated bubble and temperature compensating software





## pH Encapsulated Sensor

- LCP (Liquid Crystal Polymer)
- Convertible Mounting Style
- 3 Meter Analog Cable
- 5-Wire with Built-In Preamp
- General Purpose Glass pH Electrode
- Gel Filled Standard



## Differential pH • ORP sensor

### Differential ORP Sensors

- Plug and Play Capability with Hach's Digital SC Controllers
- Uses three electrodes instead of the two normally used in conventional pH/ORP sensors.
- Encapsulated construction protects the sensor's built-in preamp from moisture and humidity



The 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.

## Contacting Conductivity sensor

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.

### Ultimate accuracy from ultra-pure to high conductivity applications.

- Fast response to changes in temperature with  $\pm 0.1^\circ \text{C}$  accuracy
- Measure from theoretically pure water ( $0.057 \mu\text{S/cm}$  or  $18.2 \text{ M}\Omega$ ) up to  $200,000 \mu\text{S/cm}$



## Combination pH • ORP sensor

3/4" Combination pH Sensor, Convertible Sensor Style, Ryton Body Material, General Purpose pH Glass Electrode, Temperature Compensation - PT1000 Ohm RTD

- Double-junction design for extended service life, and a built-in solution ground.
- Body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous PTFE
- All sensors are rated 0 to  $105^\circ \text{C}$  up to 100 psig,



## Inductive Conductivity sensor

The Hach digital Inductive Conductivity Sensors measure 200 up to  $2,000,000 \mu\text{S/cm}$ . A built-in Pt 1000 RTD compensates the measured conductivity changes in process temperature

The Hach Digital Inductive Conductivity Sensors measure 200 up to  $2,000,000 \mu\text{S/cm}$ . A built-in Pt 1000 RTD compensates the measured conductivity for changes in process temperature.

- Wide measuring range
- Low maintenance design
- Versatile mounting styles
- Withstands harsh environments



## Dissolved Oxygen

### Hach LDO® Model 2, Optical Process Dissolved Oxygen Probe

Hach's next generation LDO (Luminescent Dissolved Oxygen) Probe requires no calibration for the entire 2 year life of the sensor cap, which means it is ready to start measuring your DO (Dissolved Oxygen) right out of the box. With an added cutting-edge 3D calibration procedure that is conducted prior to shipping, the probe will not drift and is more accurate than ever before.

#### Applications

- Wastewater
- Industrial Water
- Drinking Water





# Industrial BioTector Selection Guide



	B7000i	B3500e	B3500c	B3500ul
<b>Applications</b>	<ul style="list-style-type: none"> <li>Industrial Wastewater Treatment Plant Influent and Effluent</li> <li>Process Water</li> <li>Product Loss Control</li> <li>Oil in Water</li> </ul>	<ul style="list-style-type: none"> <li>Industrial Wastewater Treatment Plant Effluent</li> <li>Discharge Control</li> <li>Storm/River Water</li> <li>Ground/Raw Surface Water</li> </ul>	<ul style="list-style-type: none"> <li>Condensate Return</li> <li>Cooling Water</li> <li>Boiler Feed Water</li> <li>Demineralized Water</li> <li>Reverse Osmosis Water</li> <li>Carbon Bed Absorber</li> </ul>	<ul style="list-style-type: none"> <li>Pharma</li> <li>Power</li> <li>Electronics</li> <li>Ultrapure Water</li> </ul>
<b>TOC Range</b>	0- 100 up to 0- 20,000 ppm	0- 250 or 1,000 ppm	0- 25 or 100 ppm	0- 5 ppm
<b>TOC Mode</b>	TIC/TOC, TC, VOC *	TIC/TOC, TC	TIC/TOC, TC, VOC	TIC/TOC, TC, VOC
<b>Two-Stage Advanced Oxidation</b>	Yes	Yes	Yes	Yes
<b>Self Cleaning</b>	Reactor & Sample Tubing	Reactor & Sample Tubing	Reactor	Reactor
<b>Sample Characteristic</b>	<2 mm articles Dirty Fat, oil, greases, sludge and salts pH swings	<100 µm particles Semi-Dirty Some fat, oil, greases, sludge Some pH swings	<100 µm particles Clean Free of fat, oil, greases, stable pH	No particles Very Clean Free of fat, oil, greases, stable pH
<b>Number of Streams</b>	6	1	2	2

\*Configurations to measure TP/TN also available.

## BioTector

- Intelligent design** oversized sample tubing handles even the most challenging applications, including limited amounts of fats, oil, and grease (FOG)
- Advanced functionality** direct reporting of % removal (B3500dw), and reporting of TOC correlated parameters such as BOD and COD
- Powerful sample breakdown** patented Two-Stage self-cleaning oxidation technology (TSAO) is 40% more effective at oxidizing samples than analyzers
- Low cost of ownership** designed for continuous operation, the TOC BioTector requires part replacement only twice a year in many applications
- Superior reliability** typically 99.86% uptime enables plants to leverage results for continuous process control
- Worldwide service and support through Hach** with installations at leading manufacturers around the world

### Recommended Application

- Industrial
- Wastewater
- Drinking
- Food & Beverage
- Pulp & Paper
- Pharmaceutical
- Mining
- Airports and Chemical
- Petrochemical
- Refining



## Controller

Orbisphere

### Orbisphere 410/510 Controller (Portable, Wall, Panel Mount)

Designed to complement Orbisphere® high quality sensors, the Orbisphere patented Thermal Conductivity sensor has been developed to give continuous CO<sub>2</sub>, N<sub>2</sub> or O<sub>2</sub> measurement 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.



### Hach Orbisphere 6110 Total Package Analyzer

- Fast, Effective operation with touch-screen interface
- The package positioning aid with laser crosshairs confirms optimal placement
- latest technology in final package analysis for measurements of Total Package Oxygen, Headspace Oxygen and Dissolved Oxygen



## Portable / Lab Analyzer

### Orbisphere 3100 Portable Oxygen Analyser

With Luminescent Dissolved Oxygen (LDO) technology integrated into the Orbisphere 3100, this analyser is guaranteed to improve process efficiency and provide accurate dissolved oxygen measurements.

- Robust design that endures harsh environments
- Fast response time and accurate measurements
- Very low drift; requires less than once a year calibration/maintenance
- Little downtime and low cost of ownership
- User friendly instrument with colour display
- Ideal for process spot check by plant operator



### Orbisphere 3650/3655 Portable Oxygen Analyzer

3650/3655 handheld analyzer measures both saturated and trace level (down to 1 ppb) concentrations of oxygen in gases and liquids accurately.

Stores up to 500 measurements.

Rechargeable batteries allow up to 40 hours of continuous operation.

- Unrivalled accuracy and response time for fast detection of process change
- No warm up necessary for accurate measuring
- Unique design allows for extended period between recharges
- Sensor refurbishment takes 3 minutes with pre-filled recharge cartridge
- Waterproof, super-sturdy, lightweight analyzer
- ATEX System



## Orbisphere K1100 (Industrial)

The Orbisphere K1100 optical sensor together with the Orbisphere 410 controller offers a new way of monitoring 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
- No membranes = two minutes of maintenance
- Low-cost retrofit

## Orbisphere GA2x00 Oxygen Sensors

The Orbisphere GA2400/GA2800 EX oxygen (O<sub>2</sub>) Electrochemical (EC) sensors are designed for process monitoring as well as laboratory analysis in the liquid or gas phases across.

The Orbisphere GA2400 O<sub>2</sub> EC-sensor can be used for a wide range of applications from beer or soft-drinks production to rinsing of semiconductor wafers in chip-manufacturing plants, reactor coolant systems in nuclear power plants etc.

The GA2800 EX sensor is suitable for harsh environments from chemical or oil to petrochemical plants.

## Orbisphere M1100 (Food & Beverage)

The Orbisphere M1100 Luminescent dissolved oxygen analyzer, 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. The M1100 model optical sensor has an unbeatable precision of 0.8 ppb and a limit of detection of 0.6 ppb. Such accurate measurement readings are essential to control low oxygen levels in beer. The absence of membrane and electrolyte means that the analyzer accuracy is unaffected by process changes or pressure shocks. The dissolved oxygen analyzer has been designed to optimize its total cost of ownership.



- Minimal Drift and Annual Calibration
- Minimal Maintenance Optical Technology
- Low Level Oxygen Measurement with Accurate ppb
- High Level Oxygen Measurement with Accurate ppm



## Ozone



## Orbisphere C1100 Ozone sensor

The Orbisphere C1100 sensor is designed to measure ozone in ultra-pure water loops, or in the sanitizing phase of any beverage production line.

This unique sensor does not require a specific set up or skilled operators for in-line operation.

- True Zero - drift free and accurate measurements
- Fast, easy, traceable and reliable calibration
- Low-cost maintenance
- Unbeatable reliability



## Orbisphere 315xx Nitrogen Sensors

The unique Orbisphere Thermal Conductivity sensor has been developed to give continuous 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.

- Continuous N<sub>2</sub> measurements
- Selective measurement, result unaffected by the presence of other gases
- Fast response time to improve plant productivity
- Compact design for easy insertion into a process line or a flow chamber



# EZ Series Online Analyzers

## Your Complete Solution

## Monitoring Solutions for Industrial and Municipal Applications

- **Wide Analytical Range**
- **Flexibility**
- **Faster Decisions**
- **Expand Your Capabilities**

## Applications

EZ Series parameters cover the complete water cycle from water intake to wastewater effluent. Learn more by downloading application notes and parameter specific documents from the Hach® Support Page. Some examples:

- Aluminium in drinking water
- Iron and Manganese in raw water
- Microbial Activity / ATP in industrial and environmental applications
- Volatile Fatty Acids and Alkalinity in anaerobic digesters
- Alkalinity and Hardness in cooling cycles



Colorimetric  
Analyzer



ISE Analyzer



Titrator



Chemiluminescence  
Analyzer



Sample Preconditioning  
Panel

## One Platform - Multiple Technology

Thanks to the versatile instrument platform, in many cases it will be possible to match the online analysis to your established laboratory method.

- Colorimetry
- Ion-selective electrode (ISE)
- Single and multi-parameter titration
- Voltammetry
- Chemiluminescence or respirometry

All EZ Series analyzers 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.

- EZ1000 Series : colorimetric analyzers
- EZ2000 Series : colorimetric analyzers with digestion
- EZ3000 Series : ion-selective analyzers
- EZ3500 Series: ion-selective analyzers with standard addition for complex matrices
- EZ4000 Series : single parameter titrators
- EZ5000 Series : multi parameter titrators
- EZ6000 Series : voltammetric trace metal analyzers
- EZ7000 Series: dedicated analyzers, e.g. for COD, TOC or Total Nitrogen + Total Phosphorus

## Parameters

### Hardness & Alkalinity

- Hardness (Total / Ca / Mg)
- Alkalinity (Free / Total)

### Nutrients

- Ammonium
- Nitrate
- Nitrite
- Phosphate
- Total Nitrogen
- Total Phosphorus

### Organics

- COD
- TOC
- Phenol
- Volatile Fatty Acids (VFA)

### Special Parameters

- Adenosine Triphosphate (ATP) /
- Microbial Activity
- Toxicity
- Colour

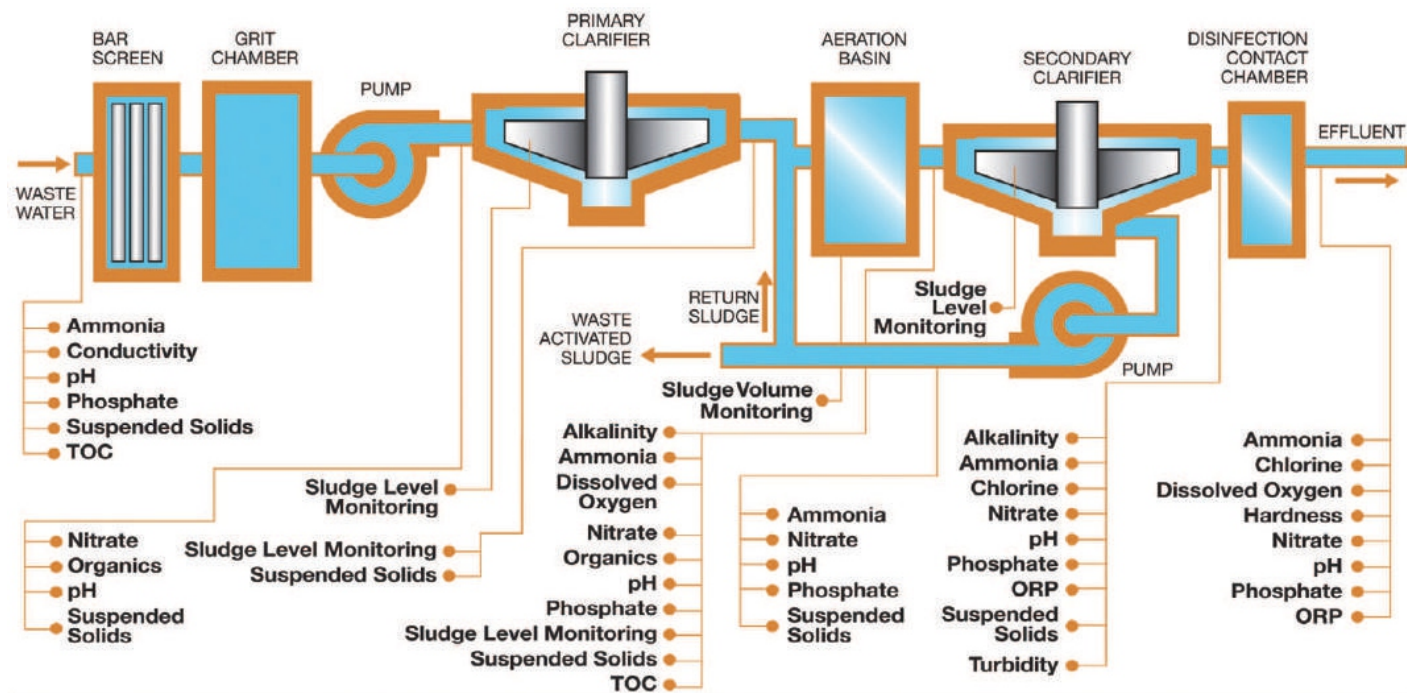
### Inorganics

- Chloride
- Chlorine (high range)
- Cyanide
- Fluoride
- Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>)
- Silica
- Sulfate
- Sulfide

### Metals

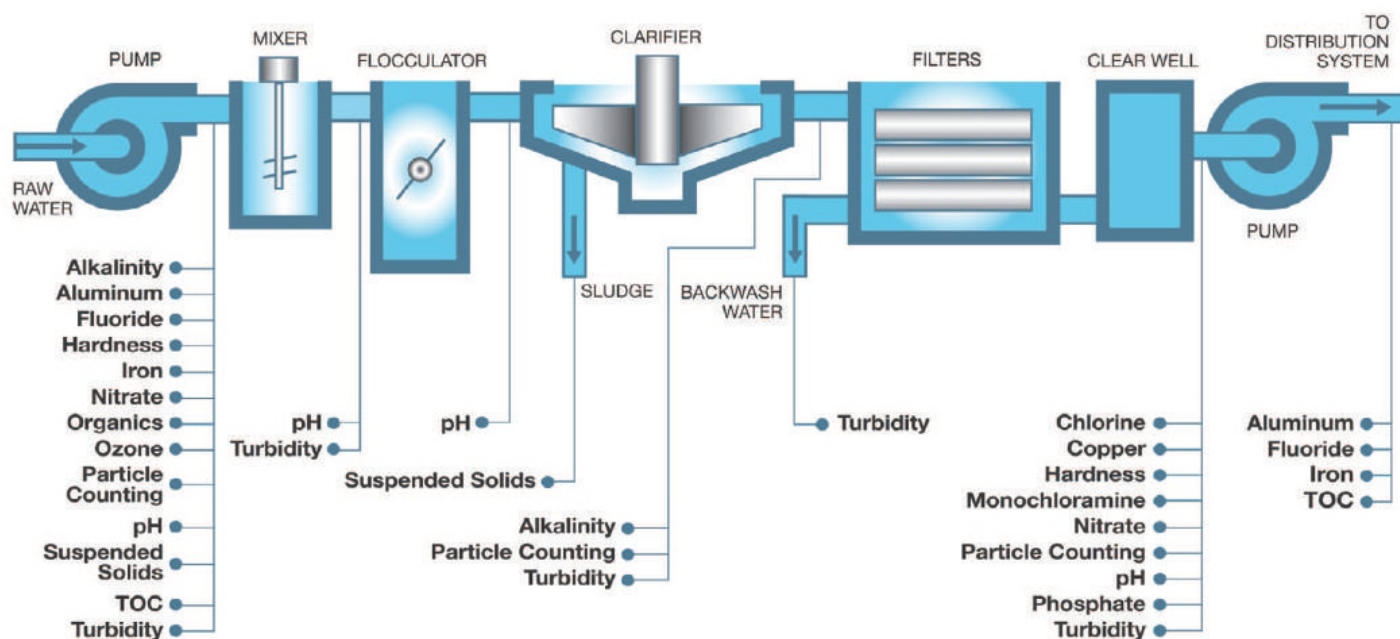
- Aluminium
- Arsenic
- Boron
- Chromium
- Copper
- Iron
- Manganese
- Zinc

# Wastewater Treatment Flow Diagram



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

# Drinking Water Treatment Flow Diagram

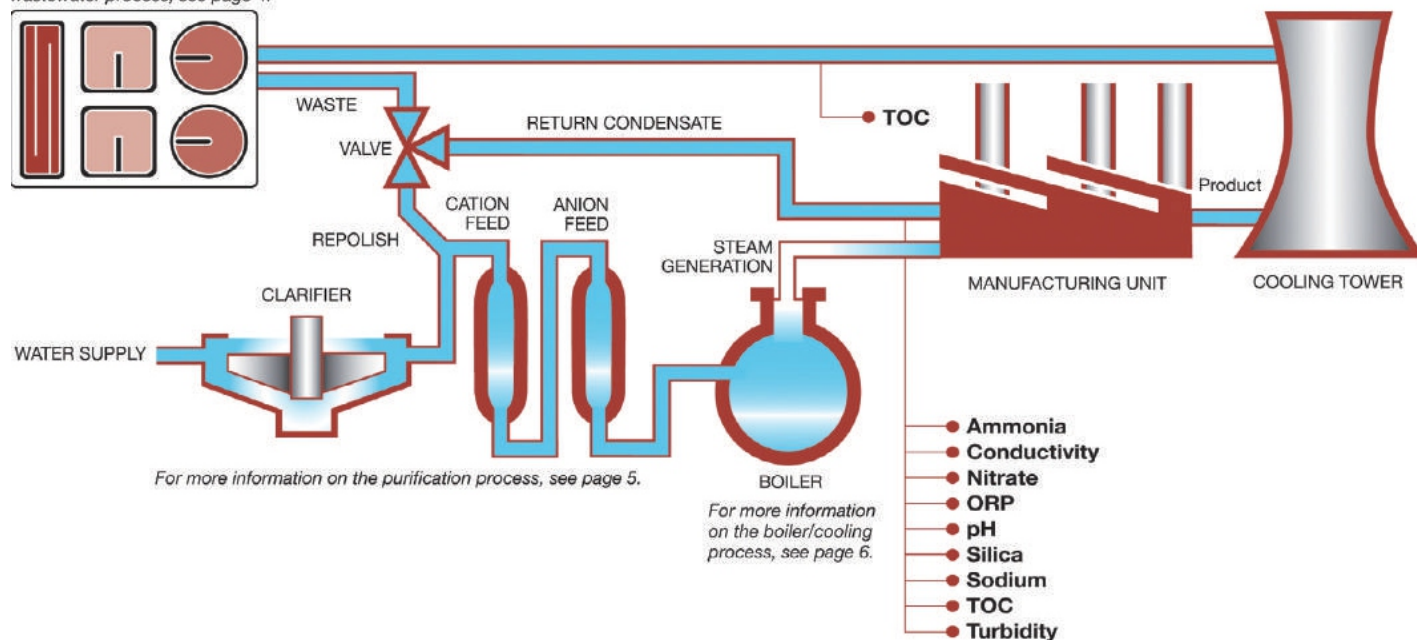


Parameter	Raw Water / Inlet	Particle Removal	Filter Inlet	Filter / Membrane Outlet	Clear Well	Outlet	Distribution	Online Sensors and Instruments	Laboratory and Portable Instruments	Test Kit
Alkalinity (P&T)	•		•			•	•	•	•	•
Aluminum	•		•	•		•	•		•	•
Ammonia	•					•	•	•	•	•
Chlorine	•			•	•	•	•	•	•	•
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	•	•	•	•	•	•	•	•	•	



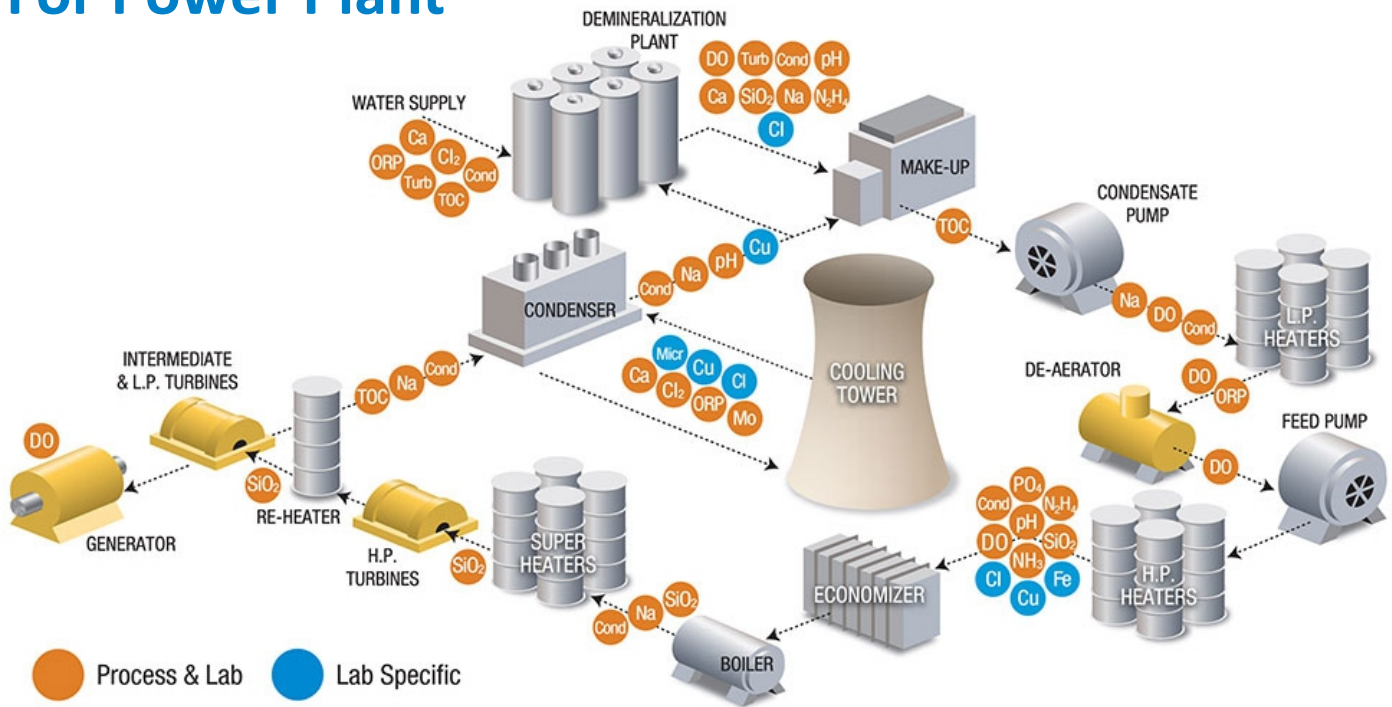
# Industrial Water Flow Diagram

For more information on the wastewater process, see page 4.

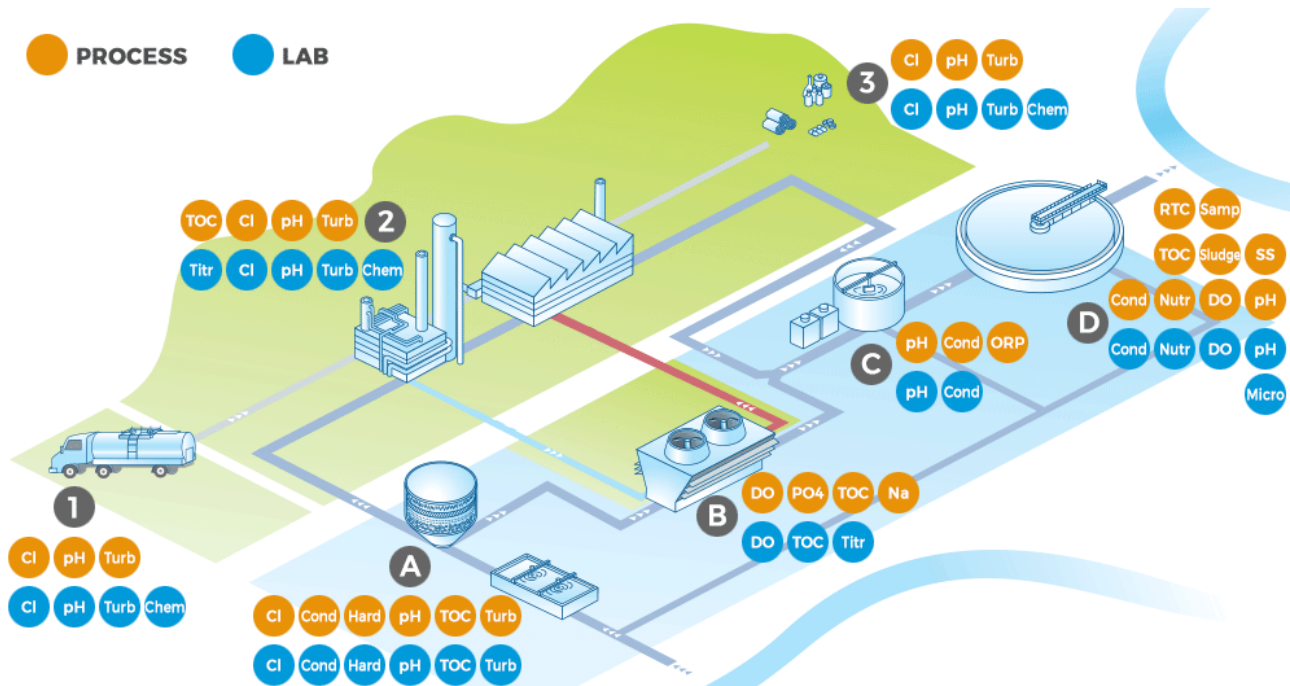


Parameter	Online sensors and analyzers	Laboratory and portable analyzers	Test kits and test stripes	Reagent
Alkalinity	•	•	•	•
Ammonia	•	•	•	•
BOD		•		•
COD		•	•	•
Chloride		•	•	•
Chlorine	•	•	•	•
Chlorine dioxide	•	•	•	•
Conductivity	•	•	•	•
Copper	•	•	•	•
Dissolved oxygen	•	•	•	•
Flow rate & Auto sampler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

# Key Measurement Parameters For Power Plant

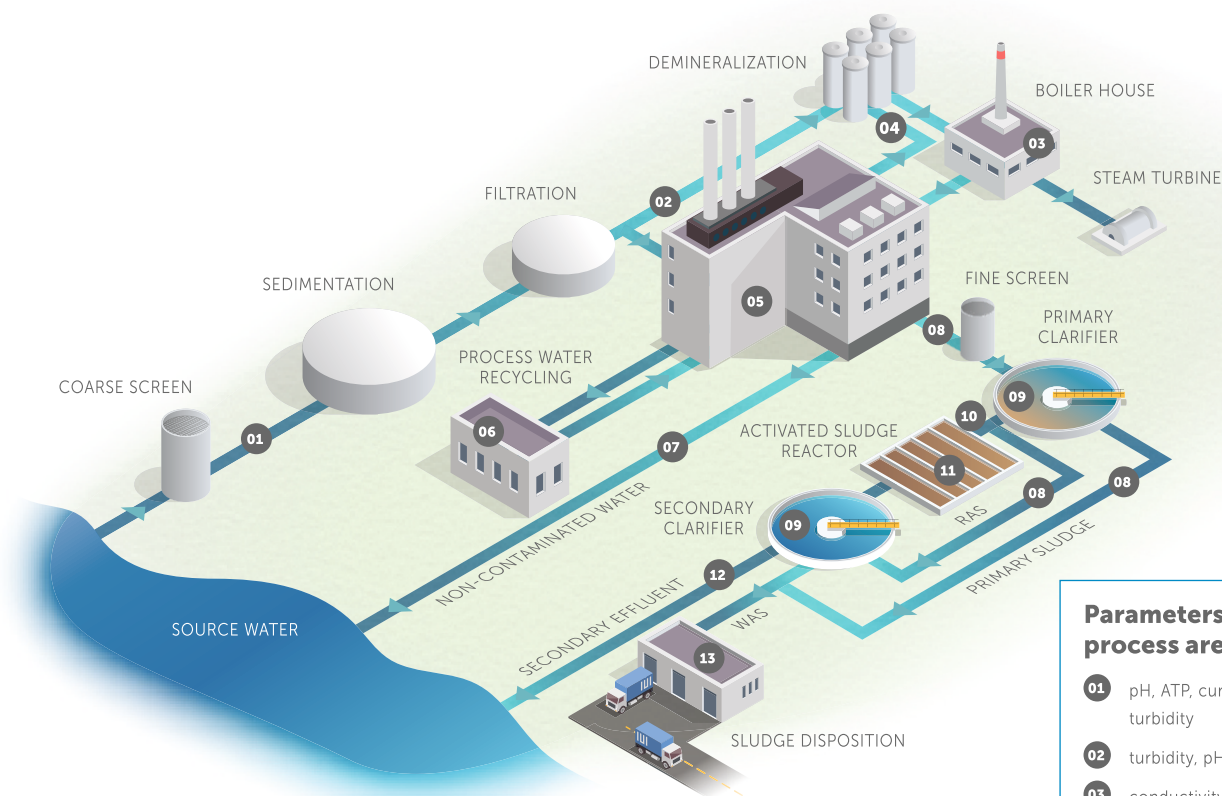


# Key Measurement Parameters For Food Plant



- |                             |                                             |                                          |
|-----------------------------|---------------------------------------------|------------------------------------------|
| <b>1</b> Delivery of Stocks | <b>A</b> Water Conditioning and Treatment   | <b>C</b> Neutralization                  |
| <b>2</b> Production         | <b>B</b> Steam/Power Generation and Cooling | <b>D</b> Biological Wastewater Treatment |
| <b>3</b> Dispatch           |                                             |                                          |

# Hach Solutions by Parameter



## Water Supply Conditioning

- ⚙️ ▲ ATP
- ▲ Color
- ⚙️ ▲ Chlorine, free and total
- ⚙️ ▲ Chlorine Dioxide
- ⚙️ ▲ Conductivity / Total Dissolved Solids (TDS)
- ⚙️ ▲ Dissolved Oxygen
- ⚙️ ▲ Hardness / Alkalinity
- ⚙️ ▲ Iron
- ⚙️ ▲ Manganese
- ⚙️ ▲ pH
- ⚙️ ▲ Silica
- ⚙️ ▲ Streaming Current
- ⚙️ ▲ Total Nitrogen (TN)
- ⚙️ ▲ Total Organic Carbon (TOC)
- ⚙️ ▲ Total Phosphorus (TP)
- ⚙️ ▲ Turbidity and Suspended Solids (TSS)

## Steam & Power

- ⚙️ ▲ Conductivity
- ⚙️ ▲ Dissolved Oxygen
- ⚙️ ▲ Hydrazine / Oxygen Scavenger

- ⚙️ ▲ Laser Turbidity / Iron Transport
- ⚙️ ▲ pH
- ⚙️ ▲ Phosphate
- ⚙️ ▲ Silica
- ⚙️ ▲ Sodium
- ⚙️ ▲ Total Nitrogen (TN)
- ⚙️ ▲ Total Organic Carbon (TOC)
- ⚙️ ▲ Total Phosphorus (TP)

## Paper Machine Wet End Operations Monitoring

- ▲ ATP
- ⚙️ ▲ Chlorine, free and total
- ⚙️ ▲ Conductivity / Total Dissolved Solids (TDS)
- ⚙️ ▲ Dissolved Oxygen
- ⚙️ ▲ Hardness
- ⚙️ ▲ ORP
- ⚙️ ▲ Laser Turbidity / Iron Transport
- ⚙️ ▲ pH
- ⚙️ ▲ Sulfate
- ⚙️ ▲ Total Nitrogen (TN)
- ⚙️ ▲ Total Organic Carbon (TOC)
- ⚙️ ▲ Total Phosphorus (TP)

- ⚙️ ▲ Turbidity and Suspended Solids (TSS)

## Wastewater Treatment

- ⚙️ ▲ Absorbance UV
- ⚙️ ▲ Ammonia
- ⚙️ ▲ ATP
- ⚙️ ▲ Biochemical Oxygen Demand (BOD)
- ⚙️ ▲ Conductivity / Total Dissolved Solids (TDS)
- ⚙️ ▲ Dissolved Oxygen
- ⚙️ ▲ Flow
- ⚙️ ▲ Nitrate
- ⚙️ ▲ Nitrite
- ⚙️ ▲ Oil in Water
- ⚙️ ▲ ORP
- ⚙️ ▲ pH
- ⚙️ ▲ Phosphate
- ⚙️ ▲ Sludge Level
- ⚙️ ▲ Total Nitrogen (TN)
- ⚙️ ▲ Total Organic Carbon (TOC)
- ⚙️ ▲ Total Phosphorus (TP)
- ⚙️ ▲ Turbidity and Suspended Solids (TSS)

## Parameters by process area

- 01 pH, ATP, current streaming, turbidity
- 02 turbidity, pH, Cl2
- 03 conductivity, sodium, silica, DO, phosphate, hydrazine
- 04 conductivity, silica
- 05 pH, solids, ATP
- 06 pH, solids, RTC-DAF
- 07 oil in water, conductivity
- 08 solids
- 09 sludge level
- 10 UV254, TN, TOC, TP, solids, COD, BOD
- 11 DO, solids, ORP, ATP
- 12 phosphate, ammonia, nitrate, nitrite, total inorganic nitrogen, solids, pH, RTC-DOS, TN, TOC, TP, COD, BOD
- 13 solids, pH, RTC-SD



# Aquafine



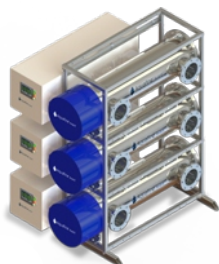
**Effective and Compact UV Water Treatment Solutions for the industry!**

## Avant™ Series

Avant™ Series Advanced UV TOC reduction system in ultrapure water (UPW) applications and UV treatment for liquid sugar.

**MARKETS:** Microelectronics & Power Generation

**APPLICATIONS:** UV water treatment, ozone reduction and TOC reduction



- Ideal for higher flow TOC destruction (> 200 gpm)
- Low pressure, high performance lamps.
- High performance lamp and sleeve combination
- Up to 75% reduction in footprint
- Smart controls with predictive maintenance to reduce unplanned downtime.

## Logic™ Series

Logic™ Series Next-generation UV series for wastewater, TOC reduction and ozone destruction

**MARKETS:** Beverage, Life Sciences and Recreational Water.

**APPLICATIONS:** UV water treatment, ozone reduction and TOC reduction



- High reliability system with robust design and proven components
- Maximum installation flexibility
- Compact size

## Don't Risk Your Facilities - Get Genuine!

### COLORGUARD' UV LAMPS

Field failure of lamps can go undetected, creating unacceptable bacteria counts and cause real problems. Aquafine's record is unmatched. The percentage of genuine Aquafine UV lamps which fail is less than 0.05% and Aquafine Colorguard UV lamps are exclusive to Aquafine, making mixing of different lamp types virtually impossible during change-out.



## OptiVenn™ Series

OptiVenn™ Series Next generation UV series for wastewater, TOC reduction and ozone reduction

**MARKETS:** Food and Beverage, Life Sciences and Microelectronics

**APPLICATIONS:** UV water treatment, ozone reduction and TOC reduction



- High reliability system with robust design and proven components
- Maximum installation flexibility
- Compact size

## Swift Beverage Series

SwiftBeverage Series Advanced UV water treatment system featuring the industry's most advanced low pressure, high-output amalgam Lamp technology

**MARKETS:** Food and Beverage, Pharma & Dairy

**APPLICATIONS:** UV water treatment system for flow range: 106-832 (24-189) GPM (m³/hr)



- Cost Efficient, high-output amalgam lamps
- High reliability system with robust design and proven components
- Maximum installation flexibility
- Compact footprint
- Electrical efficiency and advanced controls

## Aquafine's VL Series

### A Robust, Versatile and Cost-effective UV System

Aquafine's VL Series provides a compact design and economical ultraviolet (UV) water treatment for low-flow applications, such as laboratory and medical facility water, pharmaceutical make-up processes, final electronic component rinsing and recirculation loops.



#### OPTIONS:

- NIST UV intensity monitor
- Sanitary Tri-Clamp Connection
- Power Cord (NA, EU, AUS/NZ, UK)

#### APPLICATIONS:

- Disinfection
- TOC Reduction

# OTT Hydromet



## Solutions for Hydrology, Meteorology and Solar Energy

### Water Level Solution

#### OTT ecolog 1000 Water Level Logger

- Groundwater and surface water monitoring
- Integrated modem 4G/2G EU-MEA or LTE-M/CatM1 for IoT
- Wireless local communication via Bluetooth Low Energy (BLE)
- Local communication via app (Android iOS and Windows 10 devices)
- Remote access via two-way mobile communication
- Intelligent power management



#### OTT SE 200 float-operated shaft encoder water level sensor

- Easily mounts into a 4, 5 or 6-inch pipe with option mount kit
- 4-20 mA signal or serial data interface SDI-12 available
- Improved resolution by allocation of 4-20 mA signal to the required measuring range possible
- Simple system integration with standard signal 4-20 mA
- Variable: can be supplied with float cable or beaded cable



#### OTT CBS - Compact Bubbler Sensor

- Complete Solution-Combining the CBS with an EPS-50 bubble chamber reduces the influence of wave action and prevents unnecessary noise in your data
- Low Maintenance-No desiccant, pump maintenance, or lubrication required
- Compact Size-small and powerful pump motor generates the required volume of air to perform measurement.
- Low Power-Intelligent pumping strategy compares the previous measurement to the actual pressure at the current measurement, and optimizes the pumping time depending on the difference (i.e., small changes in level are measured with very short pump cycles)



#### OTT RLS - Radar Level Sensor

- No drift over time
- High Performance - Measurements are unaffected by air temperature, humidity, flood events, floating debris, or contaminated water; reduces the likelihood of missing data and reduces data post processing
- Low Maintenance -Flat antenna design eliminates nesting areas for insects and periodic maintenance requirement
- Flexible Integration/Easy Setup-Connects to most data loggers via standard communication interfaces, SDI-12 or 4-20 mA; no need for additional PC software



### Water Quality Solution

#### Hydrolab HL4/HL7 - Multiparameter Sonde

- Designed to withstand the heavy everyday use of demanding field deployments
- Typical battery life capable of greater than 90 days deployment helps ensure maximum performance
- Antifouling sensor cleaning brush significantly extends field use and decreases bio fouling
- Long term stability and accuracy is achieved with the central wiper and brush+ User configurable communication modules for simplified integration



#### Sea-Bird Scientific WQM

- Robust: excellent anti-fouling capability provided by EPA approved anti-foulant, internal, pumped flow path and external copper cladding and wiper
- Accurate: high initial accuracy and low drift rate
- Cost Effective: typical deployment duration of 3- 6 months equals fewer site visits and lower operational costs year after year
- External port enables the easy integration of an additional sensor
- With fouling minimized, the superior inherent stability of the WQM sensors translates directly to superior long-term data quality



## Water Flow Solution

### OTT SVR 100 - for Measuring Open Channel Flow

- Continuous non-contact surface velocity measurements during low, normal or high flows
- Flexible sensor mounting for quick installation on horizontal or vertical structures
- Low power consumption, ideal for powering with solar power
- Easily integrate with new or existing systems using SDI-12 (over RS-485) or Modbus protocols
- To measure water surface velocities the radar sensor applies the Doppler effect



### OTT SLD - Side Looking Doppler Sensor

- Continuous measurement of flow velocity and water level increases temporal availability of flow velocity and discharge data
- Supports multiple communication interfaces, including SDI-12 and Modbus, offered on most hydrologic data loggers or process control systems
- Automatic calculation of total volume — minimizes data processing
- Minimal power consumption permits solar powered operation
- Installation on one side of the water — one sensor per station is sufficient



## Weather Sensor Solution

### Lufft All-in one Smart Weather Sensor

- First and only all-in-one compact weather sensor with lightning detection
- Built-in data pre-processing, universal interfaces and selectable output protocols
- Maintenance-free operation – no moving parts that can wear out
- Suitable for all climate zones; also, for solar-powered automatic meteorological stations
- Cooperation with system partners worldwide demands a wide variety of different models and interfaces



## Runway & Road Sensors Solution

### Lufft Intelligent Active Road Sensor ARS31Pro-UMB

- Lufft road sensors use similar radar technology as speed cameras, but instead they measure the current water film thickness on the asphalt in front of you, so that aquaplaning is no longer a reason for changing lanes
- Simulation of critical surface conditions in the very near future\*
- For airports, installed on runway as important part of the IDS (ice detection system) and water film height detection (aquaplaning risk)
- For smart cities
- Passive sensors reliably detect road surface temperature, water film height up to 4mm, freezing temperature, ice percentage, friction and road condition



## Solar Instrument Solution

### Kipp & Zonen - Pyranometers

- Solar radiation drives almost every dynamic process on the Earth from ocean current circulation to weather, climate and the biosphere
- Most accurate pyranometer currently available
- Lowest directional error < 5 W/m<sup>2</sup>
- Individual temperature correction from -40°C to +80°C
- No change of desiccant for 10 years
- RS-485 Modbus® communication



### Kipp & Zonen – DustIQ Soiling Monitoring System

- Continuous optical measurement - uses our unique Optical Soiling Measurement (OSM) technology to measure the transmission loss of nearby PV modules due to soiling
- 24/7 measurement
- Maintenance free - no external or moving parts and, after a simple initial calibration to match the local dust characteristics, no separate maintenance is required
- Easy system integration
- Multiple measurement points - Soiling rates can vary across a PV plant depending on wind direction and module location





# Service

## Protect your investment and peace of mind

With Hach Service Plans, you have a global partner who understands your needs and cares about delivering timely, high-quality service you can trust. Our Technical Support, Field Service, and Central Service Teams work together with unique expertise to help you maximize instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk. All at a fixed annual cost that eliminates unplanned expenses.

		Bench Preventative Maintenance Partnership	Preventative Maintenance Partnership	Bench Service Partnership	BenchPlus Partnership	Field Service Partnership	WarrantyPlus Partnership
<b>ESTABLISH PERFORMANCE</b>	Commissioning				✓		✓
	Calibration/Certification	✓	✓	✓	✓	✓	✓
<b>EXTEND PERFORMANCE</b>	Routine Maintenance	✓	✓	✓	✓	✓	✓
	Repair			✓	✓	✓	✓
<b>ELEVATE PERFORMANCE</b>	Advanced Maintenance	✓	✓	✓	✓	✓	✓
	Remote Monitoring					✓ **	
<b>PARTS INCLUDED</b>	Maintenance Parts	✓	✓	✓	✓	✓	✓
	Repair Parts			✓	✓	✓	✓
<b>SERVICE LOCATION</b>	On Site		✓		✓ *	✓	✓
	Hach Service Center	✓		✓	✓ *		

\* Maintenance performed on site. All repairs performed at the Hach Service Center.

\*\* For RTC only.



Installation Service



Start-up and Commissioning



Repair Service



Maintenance Service



Technical Support



Online Shop



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LINE@

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## Hach Thailand:

Serving: Thailand, Cambodia, Laos and Myanmar

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