Process Instruments

## How does Luminescent Dissolved Oxygen work?

The HACH LDO sensor is coated with a luminescent material. Blue light from an LED is transmitted to the sensor surface. The blue light excites the luminescent material. As the material relaxes it emits red light. The time from when the blue light was sent and the red light is emitted is measured. The more oxygen that is present the shorter the time it takes for the red light to be emitted. This time is measured and correlated to the oxygen concentration. Between the flashes of blue light a red LED is flashed on the sensor and used as an internal reference.
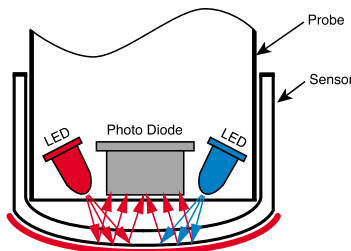
NEW!

LDO Flow Cell

NEW!

New and improved Air Blast Head

This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.

Prod. No.	Description
5790000	HACH LDO Dissolved Oxygen Probe
5790001	HACH LDO Probe Class I, Div 2

ACCESSORIES

5867000	Junction box for cable extensions
5796000	25 ft. extension cable
5796100	50 ft. extension cable
5796200	100 ft. extension cable
6190250	LDO Air Blast head kit
5795100	Air Blast Cleaning System, 115 V
5795200	Air Blast Cleaning System, 230 V
6860000	High Output Air Blast Cleaning System, 115 V
6860100	High Output Air Blast Cleaning System, 230 V
7300700	LDO flow cell

REPLACEMENT PARTS

5791100	Replacement Sensor Cap

MOUNTING KITS

5794400	Pole Mount Kit
5794300	Ball Float Mount Kit

For more information, call to request Literature #2455, or visit www.hach.com

Primary Applications

• **Wastewater**   • **Industrial Water**   • **Drinking Water**

Specifications*

Measuring Range
0 to 20.0 ppm,
0 to 20.0 mg/L,
0 to 200% saturation

Sensitivity
±0.5% of span

Accuracy
Measurement: ±0.2% of span
Temperature: ±0.2°C

Repeatability
±0.5% of span

Response Time at 20ºC
To 90% in less than 40 seconds
To 95% in less than 60 seconds

Resolution
Below 10 ppm:
±0.01 ppm or mg/L, ±0.1% saturation
Above 10 ppm:
±0.1 ppm or mg/L, ±0.1% saturation

Interferences
No interferences from the following:
H_2S, pH, K^{+1}, Na^{+1}, Mg^{+2}, Ca^{+2}, NH_4^{+1}, Al^{+3}, Pb^{+2}, Cd^{+2}, Zn^{+2}, Cr (total), Fe^{+2}, Fe^{+3}, Mn^{+2}, Cu^{+2}, Ni^{+2}, Co^{+2}, CN^{-1}, NO_3^{-1}, SO_4^{-2}, S^{-2}, PO_4^{+3}, Cl^{-1}, anion active tensides, crude oils, or Cl_2^{-1}

Operating Temperature
0 to 50°C (32 to 122°F)

Flow Rate
None required

Probe Immersion Depth and Pressure Limits
107 m (350 ft.),
1050 kPa (150 psi), maximum

Transmission Distance
100 m (328 ft.) maximum
1000 m (3280 ft.) maximum when used with a termination box

Sensor Cable (integral)
10 m (33 ft.) terminated with quick-disconnect plug

Wetted Materials
Probe: Foamed Noryl® and 316 stainless steel
Sensor: Polybutyl methacrolate

Dimensions
60 x 292 mm (2.4 x 11.5 in.)

Weight
1.4 kg (3 lbs., 2 oz.)

Warranties
Probe: 3 Years; Sensor Cap: 1 Year

Hazardous Location Ratings
ETL listed (cETLus marked) to Canadian and US General Safety and Hazardous (Class I, Div. 2) Locations

Noryl® is a registered trademark of General Electric Co.

*Subject to change without notice.

Dissolved Oxygen: M1100 Sensor

The M1100 Luminescent Dissolved Oxygen Sensor allows you to monitor oxygen in beer.

- *Minimal drift and annual calibration*
- *Highly accurate ppb oxygen measurement*
- *Robust optical technology without membrane or electrolyte*
- *Low-cost upgrade package*

NEW!

Prod. No.	Description
M1100-S00	ORBISPHERE M1100, Luminescent Dissolved Oxygen Sensor (28mm)
M1100-S10	ORBISPHERE M1100, Luminescent Dissolved Oxygen Sensor (12 mm)

Specifications*

Range
0 to 2000 ppb (dissolved O_2)

Repeatability
±0.4 ppb or 1%, whichever is greater

Reproducibility
±0.8 ppb or 2%, whichever is greater

Accuracy
±0.8 ppb or 2%, whichever is greater

Limit of Detection (LOD)
0.6 ppb, minimum

Response Time (90%)
< 10 sec (gas phase)
< 30 sec (beer process)

Display Resolution
0.1 ppb

Calibration
Single point zero calibration

Calibration Sample
Standard 99.999% nitrogen (quality 50) or equivalent oxygen free gas

Sample Temperature
-5 to 50°C (23 to 122°F)

Sample Pressure
1 to 20 bar abs (14.5 to 290 psia)

CIP
Sensor resistant to all common CIP methods (-5 to 100°C)

Storage Temperature
-5 to 100°C (23 to 212°F)
Subject to change without notice.

Dissolved Oxygen: G1200 Sensor

Confidence in results and analyzer performance in a radioactive environment.

- *Service requirement limited to "spot" change every 12 months— minimal maintenance and operator intervention significantly reducing time spent in radioactive environment*
- *Fully automatic, traceable calibration—results can always be trusted so time can be focused on solving process issue not proving result*
- *Dry sensor with no membrane, no electrolyte and no use of chemicals— Accuracy and reliability are not operator dependent; specialists not required to calibrate or maintain*
- *Tested and approved in nuclear applications for primary circuit (2Gy cumulated)*

Prod. No.	Description
G1200-300	ORBISPHERE G1200, O_2 Luminescent Sensor, Nuclear Version
51G1-P400	ORBISPHERE G1200, O_2 Luminescent Sensor + 510 controller panel mount/cables, Nuclear Certified

Specifications*

Accuracy
(r 95) ± 1 ppb ± 2% in the 0 to 600 ppb range

Detection Range
0 to 20,000 ppb

Repeatability
(r 95) ±1 ppb ±2% in the 0 to 600 ppb range

Temperature Range
5 to 45°C (41 to 113°F) Sensor resistant to temperature from -5 to 100°C (23 to 212°F)

Pressure
1 to 4 bar abs (14.5 to 58 psia)

Response Time (90%)
30 sec
Subject to change without notice.

Electrochemical (EC) sensor for corrosion control, in-line beverage, and deaerated water applications.

NEW!

- *Sensor refurbishment in 3 minutes with pre-filled recharge cartridge**

- *No zero drift or measurement drift (true zero sensor)—lower calibration frequency reduces TCO*

- *0.1ppb accuracy and fast response time (T90=7.2s)—most accurate/responsive sensor available maximizes process understanding/control*

- *Long-life (non-consumable) sensor with 1 yr warranty + 6 monthly membrane change—reduced cost of ownership as sensors are not disposable*

*Patent-pending

Prod. No.	Description
A1100-S00	ORBISPHERE A1100, O_2 Electrochemical (EC) Sensor

Specifications*

Accuracy
±1% of reading, or ± lower range, whichever is greater (Assuming correct calibration)

Detection Range
1 ppb-80 ppm (Dissolved O_2 measurement range)

Temperature Range (during measurement)
-5 to 95°C (23 to 203°F) –with a grille

Pressure (resistance)
Up to 100 bar (1450 psia)

Response Time (t90 from air)
38 sec.

*Subject to change without notice.

Dissolved Oxygen: 5740 sc Sensor

Replaceable membrane cartridge simplifies the task of installing new membranes.

- *Pre-installed, easy-to-replace membrane cartridge*

- *Rugged, foul-resistant, hydrophobic membrane withstands harsh environments*

- *Unique galvanic measurement technique*

Prod. No.	Description
5740D0B	5740 sc Galvanic DO Sensor with 10 m (32.8 ft.) integral cable

CONTROLLER

This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.

For more information, call to request Literature #2469, or visit www.hach.com

Specifications*

Measuring Range
0.0 to 40.00 ppm (0 to 40 mg/L) or 200% saturation

Sensitivity
±0.5% of span

Accuracy
Measurement: ±2% of span
Temperature: ±0.2°C

Repeatability
± 0.5% of span

Response Time at 20°C
To 90% in 120 seconds

Resolution
Below 10 ppm:
±0.01 ppm or mg/L, ±0.1% saturation
Above 10 ppm:
±0.1 ppm or mg/L, ±0.1% saturation

Operating Temperature
-5 to 50°C (23 to 122°F)

Flow Rate
0.5 cm/s (0.016 ft./s), minimum

Probe Immersion Depth and Pressure Limits
107 m (350 ft.),
1000 kPa (145 psi), maximum

Transmission Distance
100 m (328 ft.) maximum
1000 m (3280 ft.) maximum when used with a termination box

Sensor Cable (integral)
10 m (33 ft.) terminated with quick-disconnect plug

Dimensions
43.7 x 203.2 mm (1.72 x 8.00 in.)

Weight
0.26 kg (0.6 lbs.)

*Subject to change without notice.

Process Instruments

Intelligent, reliable, and simple DO measurement.

- *Calibration just three times a year*
- *No need for regeneration; the sensor is simply replaced —in less than 5 minutes*
- *Unique, self-cleaning transmitter design*
- *Cleaning is done by wiping the sensor with a cloth —three times a year when calibrated*
- *Fish farming application available—call for details*

For more information, call to request Literature #2494, or visit www.hach.com

Prod. No.	Description
SYSTEM PACKAGES	
085G4000	OXY System Package 1 Includes USC 6000, OXY 4100 DO Transmitter (Ball Float Style), OXY 1100 Membrane Cartridge, Mounting Bracket
085G4001	OXY System Package 2 Includes USC 5000, OXY 4100 DO Transmitter (Ball Float Style), OXY 1100 Membrane Cartridge, Mounting Bracket
	OXY System Package 3 Call for details OXY 4100 DO Transmitter (Ball Float Style) Must specify measurement range, OXY 1100 Membrane Cartridge, Mounting Bracket

REPLACEMENT TRANSMITTER
Must specify range if not used with USC, call for details.

085G4064	OXY 4100 DO Transmitter, Ball-Float Style 0-20ppm, 24 Vdc, 33ft Cable, 4-20 mA Hart Transmitter, DOES NOT INCLUDE MEMBRANE CARTRIDGE

USC (UNIVERSAL SIGNAL CONVERTOR)
For all these, other options exist, call for details. USC 7000, up to 15 transmitter inputs, (4) 4-20 mA outputs, (5) relays. USC 6000, (1) transmitter input, (2) 4-20 mA outputs, (3) relays. USC 5000, (1) transmitter input, (1) 4-20 mA output

085G4146	USC 7000 Nema 6, 110-230 Vac
085G4130	USC 7000 w/ PROFIBUS PA Nema 6, 110-230 Vac
085G4131	USC 7000 w/ PROFIBUS DP Nema 6, 110-230 Vac
085G4140	USC 6000 Nema 6, 110-230 Vac
085G4145	USC 5000 Nema 6, 110-230 Vac
LP-SUN02	Sun Shield for USC 304 SS

OPTIONAL TELECOMMUNICATIONS MODULE
Call for details.

MEMBRANE CARTRIDGE

085G0022	OXY 1100 Membrane Cartridge 50 µm Standard Single
085G0026	5 Pack
085G0027	10 Pack
085G0021	OXY 1100 Membrane Cartridge 25 µm (0-2 ppm) Single
085G0024	5 Pack
085G0025	10 Pack
085G0023	OXY 1100 Membrane Cartridge 125 µm (2-50 ppm) Single
085G0029	5 Pack
085G0030	10 Pack
192LX020	OXY 1100 Moisture Barrier Paste 5.3 Ounce Tube

MOUNTING BRACKET

085G4085	Universal Mounting to flat surface or pipe, holds 1.5" PVC or steel pipe to attach to transmitter, 316 SS

SPARE PARTS

081B5013	Spare Parts Kit for Mounting Bracket (2 U-bolts, 4 washers, 4 nuts)
085G9735	OXY 4100 Collar (holds ion-permeable membrane)

Primary Applications

- **Wastewater**

Specifications*

OXY 4100 and 4150 TRANSMITTERS

Measuring Range
Dissolved oxygen: 0 to 10-500%, 0 to 0.1-50 mg/L or ppm, temperature: 0 to 70°C

Measuring Uncertainty
Oxygen: ±0.5% of full scale, temperature: ±0.5°C

Current Outputs
4-20 mA, (scalable by HART®) galvanic isolated. Max. load 750 ohm@ 30 Vdc

Response Time
50 µm: time = 22 s
25 µm: time = 7 s
125 µm: time = 110 s

Cable
10 & 50 meters
(2 x 0.75 mm^2 shielded cable)

Enclosure Rating
OXY 4100 TRANSMITTER:
IP 68 to IEC 529 (1 m)
OXY 4150 TRANSMITTER:
IP 68 to IEC 529 (10 m)

Ambient Temperature
Storage: -40 to 70°C
Operation:
   Air -40 to 60°C
   Medium 0 to 40°C

Power Supply
12-30 Vdc

Automatic Calibration
Compensating for temperature (pressure, salinity, and humidity by entering values using HART®)

Approvals
CE, C-tick
Emission: EN 50081
Immunity: EN 50081-1
Immunity: EN 61000-6-2

Enclosure Material
PBT/PC

Weight/Size
OXY 4100 TRANSMITTER:
2 kg/diameter: 240 mm
OXY 4150 TRANSMITTER:
1 kg/diameter: 50 mm, length: 180 mm

OXY 1100 SENSOR

Principle
Replaceable Clark sensor measuring dissolved oxygen. Typical life: 40,000 ppm-hours for the 50µm membrane cartridge (temperature dependent)

Ambient Temperature
Storage: 0 to 70°C
Operation: 0 to 50°C

Material
Membrane: 50 µm (25 µm, 125 µm) FEP Teflon®
Cathode: Gold, Anode: Silver, Electrolyte: KCl Weight 15 g

Subject to change without notice.

Real-time analysis of data from Water Distribution Monitoring Panel and astroTOC UV On-line TOC Analyzer.

- *Alarm when water quality deviates from baseline*
- *Simplified event detection for the Water Distribution Monitoring Panel (WDMPsc) and the Source Water Monitoring Panel (SWMP)*
- *Easily upgradeable to the GuardianBlue® Early Warning System (see pages 500-503)*
- *Profile and catalog events due to operational or catastrophic excursions*
- *Trigger signal shows current deviation from water quality baseline, real-time*
- *View trigger signal and all parameter measurements from the main screen*
- *Easily communicates with your SCADA system*
- *Touch screen interface for fast and easy system navigation*
- *Patented technology*
- *Hach CityGuard™ allows for remote access and control of your systems (see pages 496-497)*

The Event Monitor integrates multiple sensor outputs from the WDMPsc and the astroTOC UV TOC Analyzer. Every 60 seconds the system's patented algorithm analyzes deviations in five water quality parameters and uses the measurements to calculate a site's water quality baseline. The system alarms when the trigger signal exceeds a user-set threshold, indicating a water quality deviation from the system's normal operating baseline parameters.

NEW!

Prod. No.	Description
6950000	Event Monitor Trigger System Includes industrial computer with touchscreen interface mounted in a stainless steel enclosure, 115 Vac power, RS485 terminals for TOC analyzer and either WDMPsc or SWMP, manual

ACCESSORIES

120161	Free-Standing Rack, wheeled

SERVICE WARRANTIES

69500EXW1	One year extended warranty
69500EXW2	Two year extended warranty
69500EXW3	Three year extended warranty

For Water Distribution Monitoring Instrumentation, see Water Distribution Monitoring Panel pages 420-421, Automatic Samplers page 509, and astroTOC UV On-line TOC Analyzer page 461.

The Event Monitor Trigger System can be easily upgraded to the GuardianBlue Early Warning System, see pages 500-503 for more info on the GuardianBlue system.

For more information, call to request Literature #2477, or visit www.hachhst.com

Specifications*

Alarms
Trigger Signal Alarm, High/Low Parameter Alarms, Frozen Parameter Alarm, Sensor Off-line Alarm; Agent Alarm; Plant Alarm; Missing Sensor; Invalid Data

Power Requirements
100-230 Vac

Operating Temperature
5 to 40ºC

Storage Temperature
-20 to 65ºC

Humidity
90% at 40ºC max

Environmental
Industrial grade, meets Nema 4 and IP65 for indoor use

Communications
RS-485 MODBUS®

Dimensions
21"(w) x 19.5"(h) x 7"(d)
(53cm x 50 cm x 18 cm)

Weight
50 lbs. (23 kg)

Enclosure Material
316 Stainless steel

Mounting
Wall mount or rack mount

Display
15" touch screen

Certification
Listed to UL 1010 by ETS

Instrumentation
Interfaces with Hach WDM Panel or Source Water Monitoring Panel; astroTOC UV On-line TOC Analyzer; Hach Sigma Portable, Refrigerated, or All-Weather Autosamplers

Subject to change without notice.

Process Instruments

Know the health of your water distribution system.

- *The right tool to establish your distribution system's water quality baseline*
- *Field proven instruments you can count on*
- *Multiparameter on-line panel includes pH, conductivity, chlorine (free or total) and turbidity, additional parameter optional*
- *Flexible system can be optimized with the Event Monitor Trigger System, On-line TOC Analyzer, Automatic Sampler, and ORP Probe*
- *Single sample inlet, outlet, and power hook-ups for ready-to-install convenience*

The Right Tool to Establish Your Distribution System's Baseline

The initial step in knowing the health of your water distribution system is taking system vitals to establish a normal baseline at critical nodes, storage reservoirs, booster stations, pump stations, and other key monitoring points. The Water Distribution Monitoring Panel monitors the right combination of "indicator" parameters chosen by industry experts and recommended by the USEPA. In combination with the Hach Event Monitor™ Trigger System, you can now detect deviations from the baseline.

Instruments You Can Count On, Each Ranked Top in Category

Reliability is critical for continuous, uninterrupted surveillance of your distribution system. Each instrument in the Water Distribution Monitoring Panel utilizes proven technology and provides readings with little or no time lag. All data is logged to the network controller and sent to the Event Monitor and SCADA or other remote locations

What's on each WDMPsc and why.

Hach HST scientists chose commonly tested parameters and robust instrumentation.

Chlorine- CL17 Chlorine Analyzer

Every 2.5 minutes the instrument obtains a sample, applies a DPD colorimetric method based on an approved USEPA method and gives either a free or total chlorine reading, depending on the reagent in use at the time. You want adequate chlorine residuals to provide a first defense against microorganism contamination, yet excess chlorine can form DBPs in the network.

Turbidity- 1720E Turbidimeter

Continuously flowing sample enters the turbidimeter body and flows through a bubble trap designed to vent any entrained air bubbles from the sample stream. Turbidity is measured by directing a beam of light from the sensor assembly into the sample in the turbidimeter body and measuring the scatter light at 90 degrees with a photocell. The amount of light scattered is proportional to the amount of

turbidity in the sample. Corrosion products and biogrowth can elevate the turbidity level in the distribution system above that of the plant effluent. The "E" uses USEPA approved method 180.1.

pH and Conductivity Probes from Hach/GLI

A patented differential pH measuring sensor provides information on the acid/base nature of the water. A two-electrode conductivity sensor measures the total ionic concentration in the water.

Temperature

Temperature is measured to ensure the probes are measuring correctly and for other generic water quality information.

Sample Pressure

The sample pressure is measured to ensure the sample going to the panel is within the specified range.

HACH®
Be Right™

Specifications*

Hach Distribution Monitoring Panel

sc1000 CONTROLLER

Dimensions
22 x 51.5"

SAMPLE REQUIREMENTS

Sample Inlet
1/2" OD Tube Connection

Sample Flow
400-600 mL/min

Sample Pressure
20 - 100 psig

Sample Operating Temperature
5 to 40ºC

Waste/Drain
3/4" NPT Hose Barb Connection

Waste/Drain Pressure
ambient, free flowing

Sampler Connection
1/4" NPT on inlet manifold

ELECTRICAL REQUIREMENTS

Line Voltage
115 Vac / 60 Hz

Power Consumption
90 VA maximum for Cl17; 30 VA for others

Digital Output
RS 485 MODBUS

Hach CL17 Chlorine Analyzer

Range
0 to 5 mg/L free or total residual chlorine

Accuracy
±5% or 0.035 mg/L as Cl_2, whichever is greater

Precision
±5% or 0.005 mg/L as Cl_2, whichever is greater

Minimum Detection Limit
0.035 mg/L

Hach 1720E Turbidimeter

Range
0.01-100 Nephelometric Turbidity Units (NTU)

Accuracy
±2% of reading or ±0.015 NTU (whichever is greater) from 0 to 40 NTU; ±5% of reading from 40 to 100 NTU

Displayed Resolution
0.0001 NTU up to 9.9999 NTU; 0.001 NTU from 10.000 to 99.999 NTU

Repeatability
Better than ±1.0% of reading or ±0.002 NTU, whichever is greater

Sample Flow Required
200 to 750 mL/minute (3.1 to 11.9 gal/hour)

Hach On-line pH Monitor

Range
0-14 pH

Sensitivity
Less than 0.005 pH

Stability
0.03 pH per 24 hours, non-cumulative

Hach On-line Conductivity Monitor

Range
0-2000 µS/cm

Accuracy
±0.01 % of reading

Stability
0.05 % of span per 24 hours, non-cumulative

Repeatability
0.1% of span or better

Temperature
20 to 200ºC

Pressure Sensor (Gems)

Range
0 - 150 psi

Subject to change without notice.

Hach's Water Distribution Monitoring Panels are shipped fully tested on a panel for wall mounting with a start-up kit and manual. The start-up kit includes reagents, and calibration standards for the CL17, 1720E, pH, and conductivity instruments. All panels include three flow meters, one Y-strainer, one pressure sensor, and one sample pressure regulator with gauge.

Prod. No.	Description
6846000	WDMP sc Includes: sc1000 with Modbus Probe Module; sc1000 Display module; pH calibration buffers; Conductivity Reference Solution 1000 µs/cm, 100 mL, quantity 3; StablCAL 20 NTU, 1L for turbidity; Free Chlorine reagent set; Total Chlorine reagent set; Sulfuric Acid, 19.2 N, 100mL MDB (for CL17 cleaning); CL17 start-up kit and 10 feet each of inlet and drain tubing, hose clamp, beaker, and manuals.
6846100	WDMP sc Same as Prod. No. 6846000 above, within a NEMA 4X enclosure.
6846200	WDMP sc Start-up Kit Included with Prod. No. 6846000. Can be ordered separately if you require additional kits. Includes: CL17 reagents, calibrations, standards, and accessories for first month of operation.
6846300	WDMP sc Maintenance Kit Includes: all the necessary items to perform routine maintenance for the first six months. NOTE: You must order your chlorine reagent separately and specify Total Chlorine Reagent Set Prod. No. 2557000 or Free Chlorine Reagent Set Prod. No. 2556900. Chlorine reagents sets last one month.

Prod. No.	Description
MONTHLY REAGENTS REQUIRED FOR WDMPsc	
2556900	Free Chlorine Reagent Set
2557000	Total Chlorine Reagent Set
ACCESSORIES	
6846400	ORP Accessory Kit Includes: ORP sensor; 200mV buffer, 500 mL
6846600	Pressure Regulator Brings sample pressure down to 125 psi where the panel can safely use it, upward limit of 300 psi.
6846700	sc1000 Controller Attachment Plate Allows sc1000 controller to be attached to the WDMP sc wheeled rack.
6844600	WDMP sc Mounting Rack, Wheeled
6840000	Probe Plug (extra)
SERVICE WARRANTIES	
FSPWDMPscbasic	Field Service Partnership for Water Distribution Monitoring Panel
FSPWDMPscfull	Field Service Partnership for full water quality system including the Event Monitor
59800EXW1	One-Year Extended Warranty
59800EXW2	Two-Year Extended Warranty
59800EXW3	Three-Year Extended Warranty

For more information, call to request Literature #2566, or visit www.hachhst.com

Process Instruments

Increases system sensitivity to organic chemicals in the distribution system.

- *Greatly enhances the detection and classification capabilities of GuardianBlue Early Warning System*
- *When combined with the Water Panel, the TOC Analyzer exponentially increases the system's sensitivity to organic chemicals, creating one of the industry's most unique and innovative early warning systems. Total organic carbon is a crucial part of the fingerprint structure.*
- *Combines chemical and ultraviolet oxidation techniques in a low-temperature reactor to deliver direct TOC measurements*
- *Uses a multi-staged UV oxidation reactor and a chemically impervious non-dispersive infrared (NDIR) CO_2 detector system, assuring full compliance with Standard Methods 5310 C and EPA method 415.1*

One of Hach's most sophisticated water quality sensors

In the first analysis step, the sample is mixed with acid, converting the total inorganic carbon (TIC) into CO_2. The TIC sparger removes all the CO_2 from the sample solution. Subsequently, the TIC-free sample is mixed with sodium persulfate and routed through the UV reactor, oxidizing the TOC into CO_2.

The gas/liquid mixture is transported by the carrier gas into the gas-liquid separator (GLS), where the sample gas is separated and diverted into the NDIR detector for the direct, interference-free CO_2 measurement. The resulting CO_2 concentration measurement is directly proportional to the original TOC concentration found in the sample. The front panel displays the TOC concentration in mg/L.

TOC Analyzers with communication hardware to interface with Event Monitor Trigger System, WDM Panel, and PipeSonde In-pipe Probe. Includes one-month's supply of reagents, 2 UV lamps, view window, drain, and reagent level indicators.

Prod. No.	Description
H-6195-1030DS	WDM astroTOC UV CRS enclosure, 0-25 mg/L (Recommended for use with the Event Monitor.)
8814000K	TOC IR Bench Calibration Gas, Nitrogen Zero
8814100K	TOC IR Bench Calibration Gas, Carbon Dioxide, 1000 PPM
8814300	Adjustable Regulator and Flowmeter Combo for 103L gases

ACCESSORIES

4300-0008	Purge Gas Generator with compressor, 110V
4300-0009	Purge Gas Generator with compressor, 230V
120161	Free Standing Rack, wheeled

SERVICE WARRANTIES

FSP1950+	Field Service Partnership for 1 year

Specifications*

Range
0-25 mg/L

Accuracy
±2% of full scale at 25ºC

Repeatability
±2% of reading at 25ºC

Minimum Detection Limit
≤0.015 mg/L for 0-5 mg/L

Response Time
T90 ≤8 min.

Serial Communication
Multi-function RS-232 or RS-485 serial port (MODBUS®, CSV)

Mounting
Wall mount or optional rack mount

*Subject to change without notice.

For more information, call to request Literature #2573, or visit www.hachhst.com

HACH®
Be Right™

800-604-3493
Outside the United States, call 970-669-3050

Accurate flow measurement at an economical price.

- *For pipe sizes from 1/2 to 4 inches*
- *Non-magnetic sensing technique*
- *Variable frequency square wave signal*
- *Wide rangeability*
- *Superior low-velocity performance*
- *FDA-approved wetted materials*
- *For use with F53, F33 or PRO-F3 controllers/ transmitters*

Principal of Operation

Hach's Impeller Flow sensors unique non-magnetic sensing technique is impervious to fouling from metal particles. The non-magnetic sensing technique reduces drag for superior low-flow and low-volume measurement accuracy.

The forward-swept, six-bladed impeller has significantly better low-flow, low-velocity characteristics than conventional four-bladed impellers to provide higher measuring accuracy.

Economical and Practical

An F53 or F33 controller can independently monitor four sensors, making this system both economical and convenient to use.

Prod. No.	Description
F1A11A1T	Polypropylene Sensor
F1A11B2T	PVDF Sensor

For more information, call to request Literature #G501 or visit www.hach.com

Mounting Tees	Mounting Tee Size								
	1/2 inch	**3/4 inch**	**1 inch**	**1 inch (high flow)**	**1 1/4 inch**	**1 1/2 inch**	**2 inch**	**3 inch**	**4 inch**
PVC tees	MHF15J2	MHF15K2	MHF15B2	MHF15L2	—	MHF15D2	MHF15E2	MHF15G2	MHF15H2
Cast bronze tees	—	—	MHF13B1	—	MHF13C1	MHF13D1	—	—	—
PVDF tees	—	—	—	—	—	MHF16D2	MHF16E2	MHF16G2	MHF16H2

Specifications*

MODEL F1A11A1T POLYPROPYLENE SENSOR

Maximum Temperature
In PVC Tee	140°F at 40 psi (60°C at 2.75 bar)
In Cast Bronze Tee	176°F at 400 psi (80°C at 27.5 bar)
In PVDF Tee	140°F at 40 psi (60°C at 2.75 bar)

Maximum Pressure
In PVC Tee	100 psi at 77°F (6.9 bar at 25°C)
In Cast Bronze Tee	400 psi at 176°F (27.5 bar at 80°C)
In PVDF Tee	100 psi at 77°F (6.9 bar at 25°C)
Repeatability (in any tee)	±0.5% of full scale
Linearity (in any tee	±1% of full scale

Accuracy**
In PVC Tee	±1% of full scale from 1 to 30 ft./sec. (0.3 to 9.0 m/sec.)
In Cast Bronze Tee	±1% of full scale from 1 to 20 ft./sec. (0.3 to 6.0 m/sec.)
In PVDF Tee	±1% of full scale from 1 to 30 ft./sec. (0.3 to 9.0 m/sec.)

Sensor Cable
2 conductor (plus shield), 20 ft. (6 m)

Wetted Materials
Polypropylene body, Polypropylene impeller, TTZ (transformation toughened zirconia), ceramic shaft and EPR O-rings

MODEL F1A11B2T PVDF SENSOR

Maximum Temperature
In PVC Tee	140°F at 40 psi (60°C at 2.75 bar)
In Cast Bronze Tee	176°F at 400 psi (80°C at 27.5 bar)
In PVDF Tee	176°F at 40 psi (60°C at 2.75 bar)

Maximum Pressure
In PVC Tee	100 psi at 77°F (6.9 bar at 25°C)
In Cast Bronze Tee	400 psi at 176°F (27.5 bar at 80°C)
In PVDF Tee	230 psi at 77°F (6.9 bar at 25°C)
Repeatability (in any tee)	±0.5% of full scale
Linearity (in any tee	±1% of full scale

Accuracy**
In PVC Tee	±1% of full scale from 1 to 30 ft./sec. (0.3 to 9.0 m/sec.)
In Cast Bronze Tee	±1% of full scale from 1 to 20 ft./sec. (0.3 to 6.0 m/sec.)
In PVDF Tee	±1% of full scale from 1 to 30 ft./sec. (0.3 to 9.0 m/sec.)

Sensor Cable
2 conductor (plus shield), 20 ft. (6 m)

Wetted Materials
PVDF body, PVDF impeller, TTZ (transformation toughened zirconia), ceramic shaft and Viton O-rings

*Subject to change without notice.

**Accuracy is attained with at least 10 diameters of straight pipe upstream of sensor and at least 5 diameters of straight pipe downstream from sensor, and with full pipe flow.

HACH® *Be Right™*

Fluoride: CA610™ Analyzer

Accurate, cost-effective fluoride analysis.

A patented electrode—with a molded replaceable lanthanum fluoride crystal tip— delivers an exceptionally long working life.

- *Ion-selective electrode with patented,[†] replaceable tip*
- *Automatic calibration*
- *Temperature-controlled flow cell*
- *Rugged, lightweight enclosure*
- *Ultra-low reagent consumption*
- *Virtually immune to interferences*

[†]*U.S. Patent #5,393,402*

Full-Time Assurance. Long-Term Affordability.

Using proven ion-selective electrode technology, Hach's CA610 Fluoride Analyzer provides continuous assurance that the fluoride concentration in your drinking water is correct. The CA610 also offers unmatched cost-efficiency and versatility. Reagent consumption is ultra-low. With a compact, self-contained design, the analyzer is ideal for monitoring in your plant or in remote locations.

Dependable Technology. Practical Design.

The CA610 delivers accurate fluoride readings regardless of changes in a sample's ionic strength, pH, or temperature. It is virtually immune to interference. Hach's unique electrode—with a patented, replaceable tip—makes maintenance simple, infrequent, and inexpensive. There's no need to replace the entire electrode— only the fluoride crystal tip.

Hach CA610 Fluoride Analyzers are shipped with a one-month supply of reagents, installation kit, annual maintenance kit, and manual. The power cord is ordered separately.

Prod. No.	Description
5740001	CA610 Fluoride Analyzer
5740002	CA610 Fluoride Analyzer with AquaTrend® Network Capability

ACCESSORIES

5448800	Power Cord with Strain Relief, 115 Vac, 10 A, 1.83 m (6')
5448900	Power Cord with Strain Relief, 230 Vac, 10 A, 1.83 m (6')

REPLACEMENT ITEMS

2816900	Reagent Set, CA610 Fluoride Analyzer Includes Reagent 1 TISAB, Standard 1, and Standard 2
5742100	Maintenance Kit**
5744400	Pump Tubing Set
5742700	Instrument Tubing Set
5744800	Electrode Kit***

***Kit includes instrument and pump tubing sets (1-year supply), replacement filter screen, and spare fittings.*

****Kit includes ISE and pH electrodes, electrode tips, syringe, and inner fill solution.*

Primary Applications

- **Drinking Water**
- **Industrial Water**

Specifications*

Range
0.1 - 10 mg/L Fluoride

Accuracy
±10% or ±0.10 mg/L, whichever is greater

Detection Limit
0.10 ppm

Cycle Time
4.2 minutes

Recorder Outputs
One 4-20 mA, with output span programmable over any portion of the 0.1 to 10 mg/L range. 130 V isolation from earth ground

Alarms
Two alarms, selectable for sample concentration, system warning or system shutdown. Each alarm equipped with an SPDT relay with contacts rated for 5 A resistive load at 230 Vac.

Optional External Outputs
AquaTrend® Network interface

Subject to change without notice.

Accurate, continuous hardness measurement.

• *Measures low-range hardness using EPA-approved calmagite chemistry*

• *Accurately and continuously measures up to two sample streams (requires sample sequencing kit)*

• *Operates unattended for one month*

• *Self-calibrating, self diagnostics*

• *Makes your water softening system more efficient and less costly*

Industrial and Ultrapure Water Applications

The APA 6000 Hardness Analyzer can be used to monitor both influent and effluent in industrial applications and water treatment processes including demineralizer effluent, boiler feed-water, boiler water, and process water. It is also appropriate for monitoring hardness in ultrapure processes used by pharmaceutical, electronic chip, and cosmetics manufacturers.

Primary Applications

• **Drinking Water**   • **Pure Water/Power**   • **Industrial Water**

Each analyzer includes an installation kit, one month's supply of reagents, a maintenance kit, a sample conditioning kit, an illustrated manual, and a quick reference card. Power cords must be ordered separately.

Prod. No.	Description
5100210	APA 6000 Low-Range Hardness Analyzer 50 to 10,000 µg/L, with AquaTrend®
6200010	APA 6000 High-Range Hardness Analyzer 10 to 1,000 mg/L, with AquaTrend®

ACCESSORIES

Low-Range Hardness NOTE: both sets are required for operation.

6001900	Low-Range Hardness Reagent Set
6002000	Low-Range Hardness Standards Set

High-Range Hardness NOTE: both sets are required for operation.

6002100	High-Range Hardness Reagent Set
6002200	High-Range Hardness Standards Set
5133900	APA 6000 Micro Filter System, 115 V
5133901	APA 6000 Micro Filter System, 230 V
4630600	Power cord kit, 120 Vac
4630800	Power cord kit, 240 Vac
6200900	Sample Sequencing Kit

For more information, call to request Literature #1584 or visit www.hach.com

Specifications*

LOW-RANGE ANALYZER

Range
0.05 to 10 mg/L for hardness as calcium carbonate

Accuracy
±5 % of reading or ± 0.05 mg/L whichever is greater

Repeatability
±3% of reading or ± 0.03mg/L whichever is greater

Response Time
Less than 5 minutes for 90% response

Cycle Time
4 minutes

HIGH-RANGE ANALYZER

Range
10 to 1000 mg/l as $CaCO_3$

Accuracy
±5 % of reading or ± 2 mg/L $CaCO_3$ whichever is greater

Repeatability
±5% of reading or ±2 mg/L as $CaCO_3$, whichever is greater

Response Time
Less than 17 minutes for 90% response

Cycle Time
8.2 minutes

APPLY TO BOTH ANALYZERS

Sample Temperature Range
5 to 50ºC (41 to 122ºF)

Sample Flow
100 to 2000 mL/min. max.

Inlet Pressure
0.5 to 30.0 psig (0.03 to 2.04 bar)

Drain Fitting
3/4" NPT barbed hose fitting

Outputs
Two 4-20 mA outputs suitable for recorders or PID control. Output span programmable over any portion of the measuring range (130 Vac isolation from earth ground).

Alarms
Two SPDT relays with contacts rated for 5A resistive load at 230 Vac. Additional relays available with optional Signal Output Modules.

Network Connectivity
AquaTrend™ network, using the Lonworks® protocol

Certification
NRTL certified to UL and CSA standards and CE approved

Power Requirements
95-240 Vac, 50/60 Hz ± 2 Hz

Enclosure
NEMA-4X(indoor)/IEC 529 (IP66) with provision for air purge. Reagent enclosure is drip-proof.

Dimensions
21 x 25 x 21" (522 x 627 x 526 mm)

Weight
56 lbs (25.5 kg)

*Subject to change without notice.

Process Instruments

Maximize your softener cycle time and minimize your regeneration cost.

- *Low Maintenance—operates unattended for two months*
- *Low reagent consumption*
- *Rugged, lightweight, and self-contained*
- *Operates unattended for two months*
- *Immediately signals hardness breakthrough to activate regeneration*
- *Makes your water softening system more efficient and less costly*
- *Reliable, simple, and accurate—with automated calibration*
- *Continuous monitoring in "real time"*

Continuous Hardness Detection

The SP 510 detects hardness breakthrough when the capacity of the water softener is exhausted, immediately signaling the need for regeneration. Alarm points 0.3, 1, 2, 5, 10, 20, 50 and 100 ppm (expressed as mg/L of $CaCO_3$) are selected by choosing the corresponding Hach model. Easy-to-read LED indicators show a simple "HARD" or "SOFT" sample status. You can also use the SP 510's built-in alarm relay to actuate an external annunciator.

Low Maintenance Requirements

The SP 510 samples water every two minutes, operating automatically for up to 60 days. Spend only about 15 minutes of your time every two months to replenish and standardize the reagents. Replace tubing in the pump system every six months.

Convenient, Trouble-Free Operation

The SP 510 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.

Primary Applications

- **Drinking Water**
- **Pure Water/Power**
- **Industrial Water**

Specifications*

Repeatability
± 10% of set point value in 0.3-2 mg/L ranges
± 4% of set point value in 5-100 mg/L ranges

Cycle Time
2.0 minutes, average

Output
One SPDT relay

Power
115/230 Vac, 50/60 Hz, selectable

Certification
NRTL certified to UL and CSA standards, and CE approved

Reagent Requirements
1 each of indicator and buffer. Replenish every two months for continuous operation.

Alarm Delay
2 consecutive cycles above set point activate alarm.
1 cycle below set point cancels alarm.

Subject to change without notice.

Includes a two-month supply of reagents, an installation kit, a maintenance kit, and an instruction manual. (Recorder output capabilities not available.) Note: Select the model with the alarm trip point 40 to 50 percent higher than your normal effluent hardness.

Prod. No.	Alarm Trip Point
5410003	0.3 mg/L
5410001	1 mg/L
5410002	2 mg/L
5410005	5 mg/L
5410010	10 mg/L
5410020	20 mg/L
5410050	50 mg/L
5410099	100 mg/L
5448800	Power cord Kit with strain relief, 120 Vac
5448900	Power cord Kit with strain relief, 240 Vac

A customized SP 510 is available that activates the alarm after one cycle instead of two. Contact your Hach representative for details.

For more information, call to request Literature #1457 or visit www.hach.com

See pages 161-163 for reagents, test kits, and accessories for measuring hardness in the lab or field.

Reliable and economical molybdate analysis.

- *Uses fast, reliable, and economical catechol chemistry for up to 30 days of unattended operation*
- *No extensive maintenance and minimal use of reagents means low operating costs*
- *Manual or automatic feed pump control*
- *The instrument performs self-diagnostics on every cycle and will issue warnings or alarms when an issue is detected —making troubleshooting simple*
- *Cost-effective alternative to grab samples and lab testing*

Ideal for Industrial Water Treatment Applications

The MO42 Molybdate Analyzer is ideal for industrial water treatment applications where it is necessary to continuously monitor and control the concentration of molybdate within specified levels— cooling towers and closed recirculating systems, such as hot water heating (boilers) and chilled water systems (coolers).

Molybdate compounds are used extensively in these areas as corrosion inhibitors or as tracer agents for the determination of concentrations of other treatment chemicals. It is important that the concentration of molybdate be maintained at the specified levels in order to balance the benefits of corrosion protection without the additional expenses of chemical overfeed.

The Hach MO42 Molybdate Analyzer is an effective alternative to laboratory methods for molybdate monitoring and allows for real time feed control.

Hach MO42 Molybdate Analyzers include a one-month supply of reagents, maintenance kit, installation kit, and user manual. (Power cord sold separately.)

Prod. No.	Description
6180004	Hach MO42 Molybdate Analyzer

ACCESSORIES

5448800	Power Cord; 125V, 10A, 1.83 m (6 ft.)
5448900	Power Cord; 230V, 10A, 1.83 m (6 ft.), continental European plug
6181100	Maintenance Kit; 1 year, includes tubing, caps, funnel, and fittings
6181101	Maintenance Kit with Preassembled Tubing; 1 year, includes tubing, caps, funnel, and fittings
4643600	Flow Meter; with 1/4-inch OD tubing

REAGENTS

The Hach MO42 Molybdate Analyzer requires two (2) 500 mL bottles of reagent for a 30-day operating period.

2890549	MO42 Reagent, 500 mL

For more information, call to request Literature #2589 or visit www.hach.com

Primary Applications

- **Pure Water/Power**
- **Industrial Water**

Specifications*

Range
0 to 5 mg/L as Mo^{6+}

Accuracy
±5% or ±0.05 mg/L as Mo^{6+}, whichever is greater

Precision
±3% or 0.03 mg/L as Mo^{6+}, whichever is greater

Minimum Detection Limit
0.03 mg/L

Cycle Time
2.5 minutes

Operating Temperature
5 to 40°C (41 to 104°F)

Recorder Outputs
One 4-20 mA with an output span programmable over any portion of the 0 to 5 mg/L range, 130 V isolation from earth ground, 500 ohm maximum

Alarm Relay Outputs
Two alarms selectable for sample concentration alarm, analyzer system warning, or analyzer system shut-down alarm.

Shipping Weight
11.3 kg (25 lbs.)
Subject to change without notice.

Monochloramine/Ammonia: APA 6000™ Analyzer

Total chloramination control.

- *Automatic operation—the system auto-calibrates, cleans, primes, and displays alarms on the front panel.*

- *Two-stream operation—optionally monitor up to two separate sample streams. The system completes one measurement per stream every 5 minutes.*

- *Flexible alarms and outputs—user-configured outputs include two 4-20mA analog outputs and two alarm relays. The analyzer can be expanded to 14 analog and/or relay outputs by adding additional Signal Output Modules.*

Complete Confidence

The APA 6000 Ammonia/ Monochloramine Analyzer was developed to meet the strict monitoring requirements of the Metropolitan Water District of Southern California—one of the largest water districts in the USA. It also meets your requirements for easy installation and continuous operation.

Primary Applications

- **Drinking Water**

Specifications*

Speciation
Free and Total Ammonia (NH_3) and Monochloramine (NH_2Cl) as N. Also menu selectable to display as Cl_2

Range
0.02 to 2 mg/L as N
(0.1 to 10.0 mg/L as Cl_2)

Accuracy
± 5% of reading or ± 0.02 mg/L as N (0.1 mg/L as Cl_2), whichever is greater

Repeatability
± 3% of reading or ± 0.01 mg/L as N (0.05 mg/L as Cl_2), whichever is greater

Cycle Time
5.0 minutes per analysis for 1 sample stream (Optionally capable of sampling 2 streams—requires sample sequencing kit)

Alarms
Two SPDT alarm relays included; total of up to 14 programmable alarm relays (with optional Signal Output Modules)

Outputs
Two 4-20 mA outputs included; total of up to 14 programmable 4-20 mA outputs (with optional Signal Output Modules)

Network Connectivity
AquaTrend network using the LonWorks protocol

Compliance/Certification
UL, CSA and IEC safety standards, FCC & European RFI standards and European EMI standards

Dimensions
Approximately 522 x 627 x 527 mm (21" tall, 25" wide, 21" deep)

Enclosure
NEMA 4X (indoor)/IEC529 (IP66) with provision for air purge Reagent enclosure is drip-proof

Weight
25.5 kg (56 lbs.)

Power
95-240 Vac, 50/60 Hz

Subject to change without notice.

Each analyzer includes an installation kit, one month's supply of reagents, a maintenance kit, a sample conditioning kit, an illustrated manual, and a quick reference card. Power cords must be ordered separately.

Prod. No.	Description
5500610	APA 6000 Ammonia and Monochloramine Analyzer with AquaTrend®

ACCESSORIES

Prod. No.	Description
6001400	Ammonia/Monochloramine Reagent Set
6001500	Ammonia/Monochloramine Standards Set

NOTE: both sets are required for operation.

Prod. No.	Description
5133900	APA 6000 Micro Filter System, 115 V
5133901	APA 6000 Micro Filter System, 230 V
4630600	Power cord kit, 120 Vac
4630800	Power cord kit, 240 Vac
6200900	Sample Sequencing Kit

For more information, call to request Literature #1607, or visit www.hach.com

See page 134 for reagents, test kits, and accessories for measuring ammonia/monchloramine in the lab or field.

HACH®
Be Right™

800-227-4224
Outside the United States, call 970-669-3050

UV analysis—the reagent-free alternative.

- *UV absorption method—proven, continuous, and precise*
- *Eliminates reagents, sampling, and sample conditioning*
- *Self-cleaning sensor using built-in wiper*
- *Life-long factory calibration*
- *Full-featured plug-and-play with sc100 or sc1000 Digital Controllers*

UV Analysis—Eliminates Reagents, Sampling, and Sample Conditioning

Using advanced ultraviolet (UV) absorption technology, Hach NITRATAX UV Nitrate Sensors offer unprecedented simplicity, accuracy, and economy in nitrate analysis.

UV Absorption Method—Proven, Continuous, Precise

NITRATAX sensors rely on the principle that molecular bonds can absorb ultraviolet (UV) light—in this case, nitrate (NO_3) and nitrite (NO_2) absorb UV light. As the concentration of nitrate or nitrite increases, UV absorption also increases. A built-in photometer measures the absorbance, while a second beam of UV light provides a reference standard and corrects for interference caused by turbidity and organic matter.

Primary Applications

- Drinking Water
- Wastewater
- Industrial Water
- Environmental

CERTIFIED
HACH
SERVICEPLUS
PROGRAM

Specifications*

	NITRATAX plus sc	NITRATAX eco sc	NITRATAX clear sc
Measuring Principal	Reagent-free UV absorption with patented 2-beam technique (applies to all)		
Measuring Gap/Path Length	1, 2, and 5 mm	1 mm	5 mm
Measuring Range NO_{2+3}-N	0.1 to 100.0 mg/L (1 mm) 0.1 to 50.0 mg/L (2 mm) 0.1 to 25.0 mg/L (5 mm)	1.0 to 20.0 mg/L (1 mm)	0.5 to 20.0 mg/L (5 mm)
Detection Limits NO_3-N	0.1 to 100 mg/L	1.0 to 20 mg/L	0.5 to 20 mg/L
Accuracy	± 3% of the mean ± 0.5	± 5% of the mean ± 1.0	± 5% of the mean ± 0.5
Resolution	0.1 mg/L	0.5 mg/L	0.1 mg/L

Subject to change without notice.

Prod. No.	Description
NITRATAX sc UV NITRATE ANALYZER SYSTEMS	
6139200	NITRATAX plus sc System includes sensor with 2 mm path length, mounting hardware, and sc100 controller
6139500	NITRATAX plus sc System includes sensor with 2 mm path length, flow-through cell, and sc100 controller.
6139400	NITRATAX eco sc System includes sensor with 1 mm path length, mounting hardware, and sc100 controller
6139300	NITRATAX clear sc System includes sensor with 5 mm path length, mounting hardware, and sc100 controller
6139600	NITRATAX clear sc System includes sensor with 5 mm path length, flow through cell, and sc100 controller

INDIVIDUAL NITRATAX sc UV NITRATE SENSORS
All sensors are equipped with 10 m (32.8 ft.) cable.

LXV417.99.10002	NITRATAX plus sc Sensor 1 mm path length
LXV417.99.20002	NITRATAX plus sc Sensor 2 mm path length
LXV417.99.50002	NITRATAX plus sc Sensor 5 mm path length
LXV420.99.50002	NITRATAX clear sc Sensor 5 mm path length
LXV415.99.10002	NITRATAX eco sc Sensor 1 mm path length

CONTROLLER

This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.

Prod. No.	Description
ACCESSORIES	
LZX414.00.10000	Mounting hardware for sensor
LZX869	Flow-through cell for NITRATAX plus sc-sensors, 2 mm path length
LZX867	Flow-through cell for NITRATAX plus sc-sensors, 5 mm path length
LZX866	Flow-through cell for NITRATAX clear sc-sensors, 5 mm path length
LCW825	Calibration standard 50 mg/L (11.3 mg/L NO_3-N)
LZX148	Spare wiper blades for 1 mm Nitratax, pk/5
LZX012	Spare wiper blades for 2 mm Nitratax, pk/5
LZX117	Spare wiper blades for 5 mm Nitratax, pk/5
CABLE ACCESSORIES	
5867000	Junction box for extension cables
5796000	Extension cable, 7.6 m (25 ft.)
5796100	Extension cable, 15.2 m (50 ft.)
5796200	Extension cable, 30.5 m (100 ft.)

For more information, call to request Literature #2464 or visit www.hach.com

The easiest to maintain nitrate ISE sensor for continuous trending.

NEW!

- *Improved Accuracy—with the NEW CARTRICAL™ technology*
- *Simplified Maintenance—cartridge replacement in minutes*
- *No Sample Preparation—sensor immersion directly in aeration basin*
- *Economical to Operate—with continuous measurement and trending*

Hach's innovative technology, CARTRICAL makes the NO3D sc the easiest to maintain nitrate ISE sensor for continuous trending.

Principal of Operation:

The Hach NO3D sc Nitrate Sensor uses an ion-selective electrode (ISE) to detect nitrate ions (NO_3^-) directly in the aeration basin as nitrate nitrogen (NO_3-N). A differential electrode is used as the reference electrode for superior stability. The most probable interference is from chloride ions (Cl^-) which is compensated through the use of an integrated chloride ISE to correct the nitrate value. Other interferences are further reduced using CARTRICAL technology, which calibrates each electrode individually and calibrates all three electrodes to each other. A temperature sensor is also included to improve accuracy.

Primary Applications

- **Municipal Wastewater**

Specifications*

Measurement Method
Ion-selective electrodes for nitrate and chloride with differential reference electrode and temperature sensor

Range
0 to 1000 mg/L NO_3-N

Accuracy
5% of measured value ±0.2 mg/L (with standard solution)

Detection Limit
0.2 mg/L

Response Time
Less than 3 minutes (T90)

Operating Temperature
-20 to 45°C (-4 to 113°F)

Sample Temperature
2 to 40°C (35 to 104°F)

Sample pH
5 to 9

Sensor Immersion Depth
0.3 to 3.0 m (1 to 10 ft.) maximum

Sample Pressure
0.3 bar (4.4 psi) maximum

Storage Temperature
Sensor: -20 to 60°C (-4 to 140°F)
Sensor Cartridge: 5 to 40°C (41 to 104°F)

Calibration
Sensor cartridge, calibrated (sensor code contains factory calibration in code form)
Entry of sensor code calibrates the sensor
No standard solutions needed
1- or 2-point inline matrix correction adapts sensor to the wastewater matrix

Certifications
CE approved

Sensor Construction
316 stainless steel with Ryton® ends

Dimensions
48 x 361 mm (1.9 x 14.2 in.)

Cable Length
Standard: 10 m (33 ft.)
Optional Extensions: 7.6 m (25 ft.), 15.2 m (50 ft), or 30.5 m (100 ft.)
Maximum Total Length: 100 m (328 ft.)

Weight
1.3 kg (2.9 lbs.)

Warranty
1 year

Ryton® is a trademark of Phillips Petroleum Company.

Subject to change without notice.

Prod. No.	Description
LXV442.99.00002	NO3D sc Nitrate Sensor, includes 10 m (32.8 ft.) integral cable and a calibrated sensor cartridge

CONTROLLER

This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.

MOUNTING KITS

6184900	Rail Mount Kit
LZX914.99.12400	Chain Mount Kit

ACCESSORIES

LZY331	Cleaning Unit
6860000	High Output Air Blast Cleaning Compressor, 115 Vac
6860100	High Output Air Blast Cleaning Compressor, 230 Vac

REPLACEMENT PARTS

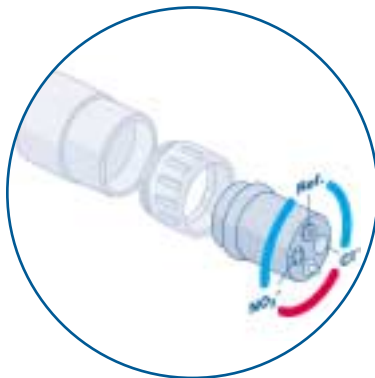|	
6188401	Calibrated Sensor Cartridge
6188300	Test-Cartridge

For more information, call to request Literature #2649, or visit www.hach.com

See page 173 for reagents, test kits, and accessories for measuring Nitrate in the lab or field.

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

- Probe design makes it the low price solution among competitive UV fluorescence instruments
- No tubes, pumps, or valves that can foul or require frequent maintenance
- Accurate online measurement reduces time-consuming laboratory testing
- Can detect polycyclic aromatic hydrocarbons (PAHs) from 1.2 ppb to up to 5000 ppb (µg/L) or mineral oils from 0.1 to 150 ppm (mg/L)
- UV fluorescence method makes it impervious to interferences by turbid water or natural organic matter (NOM)
- Available in stainless steel or titanium housing for measurement in the harshest of conditions
- Plug-and-play with Hach Digital Controllers

Principle of Operation

The FP 360 sc measures intensity of fluorescence light at a wavelength of 360 nm emitted by polycyclic aromatic hydrocarbons (PAH) after UV irradiation of the sample at 254 nm. Since PAHs are components of most mineral oils, the FP 360 sc can detect the presence of oil contamination in surface, process, or industrial waters. In addition, since the intensity of the emitted light is proportional to the PAHs concentration, the FP 360 sc can be calibrated to measure oil concentration in stable matrices.

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.

For more information, call to request Literature #2668 or visit www.hach.com

Primary Applications

- **Drinking Water**
- **Wastewater**
- **Pure Water/Power**
- **Industrial Water**

Prod. No.	Description
STAINLESS STEEL WITHOUT CLEANING UNIT	
LXV441.99.11102	0–500 µg/L, 32.8 ft (10 m) cable
LXV441.99.11302	0–500 µg/L, 5 ft (1.5 m) cable
LXV441.99.21102	0–5,000 µg/L, 32.8 ft (10 m) cable
LXV441.99.21302	0–5,000 µg/L, 5 ft (1.5 m) cable
STAINLESS STEEL WITH CLEANING UNIT	
LXV441.99.11202	0–500 µg/L, 32.8 ft (10 m) cable
LXV441.99.21202	0–5,000 µg/L, 32.8 ft (10 m) cable
TITANIUM WITHOUT CLEANING UNIT	
LXV441.99.12102	0–500 µg/L, 32.8 ft (10 m) cable
LXV441.99.12302	0–500 µg/L, 5 ft (1.5 m) cable
LXV441.99.22102	0–5,000 µg/L, 32.8 ft (10 m) cable
LXV441.99.22302	0–5,000 µg/L, 5 ft (1.5 m) cable
TITANIUM WITH CLEANING UNIT	
LXV441.99.12202	0–500 µg/L, 32.8 ft (10 m) cable
LXV441.99.22202	0–5,000 µg/L, 32.8 ft (10 m) cable

Note: Probes with cleaning unit cannot be operated in combination with the flow cell, Prod. No. LZY669.

CONTROLLER

This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.

RECOMMENDED ACCESSORIES

Mounting Hardware:

LZX914.99.11110	SS chain mounting set
LZY669	Flow cell with mounting panel

Specifications*

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

Measurement Wavelength
360 nm

Measuring Range
Low Measuring Range:
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)**
High Measuring Range:
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
Limit of Detection (LOD) is 1.2 ppb (PAH)

Reproducibility
2.5% of measured value at constant temperature

Response Time
10 s (T90)

Calibration
Factory calibrated with UV fluorescence standard or process calibration with results of a grab sample analysis.

Sample Temperature
33.8 to 104°F or 1 to 40°C

Pressure Range
Max. 30 bar or 435 psia (measurement probe)

Housing
Stainless steel 316Ti (1.4571) or titanium

Dimensions
2.68" x 12.05" or 68 x 306 mm (D x H; without connector and suspension pin)

Weight
Stainless Steel: 6.2 lbs or 2.8 kg
Titanium: 4 lbs or 1.8 kg

**With Calibration Standard.

*Subject to change without notice.

Process Instruments

Continuously protect plant treatment processes from high influent organic loads.

- *Continuous, automatic early warning systems*
- *Control activated sludge processes*
- *Integrated self-cleaning wiper system*
- *Monitor efficiency of UV disinfection process*
- *Self diagnostics and easy maintenance*

SERVICEPLUS
CERTIFIED HACH PROGRAM

Primary Applications

- **Drinking Water**
- **Wastewater**
- **Industrial Water**

Principal of Operation

The Hach UVAS sc UV Absorbance / %Transmittance Sensor determines the Spectral Absorption Coefficient (SAC) at a wavelength of 254 nm. Measurements can be expressed in absorption units (m^{-1}), mE, AU, %T, %T/cm, mg/L, or ppm.

Prod. No.	Description
	UVAS sc UV ABSORBANCE/TRANSMITTANCE SYSTEM
	The following systems include the Hach sc100 controller.
6945000	1 mm UVAS sc sensor
6945100	2 mm UVAS sc sensor
6945200	5 mm UVAS sc sensor
6945300	50 mm UVAS sc sensor

	UVAS sc SENSOR ONLY
LXV418.99.10002	1 mm UVAS sc sensor only
LXV418.99.20002	2 mm UVAS sc sensor only
LXV418.99.50002	5 mm UVAS sc sensor only
LXV418.99.90002	50 mm UVAS sc sensor only

CONTROLLER

This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.

	BYPASS PANEL
LZX868	Bypass Panel for 50 mm sensor
LZX867	Bypass Panel for 5 mm sensor
LZX869	Bypass Panel for 2 mm sensor

	MOUNTING HARDWARE
LZX414.00.10000	Mounting Hardware with 90 degree adapter

	ACCESSORIES
LZX148	Spare wiper blades for 1 mm UVAS sc, pk/5
LZX012	Spare wiper blades for 2 mm UVAS sc, pk/5
LZX119	Spare wiper blades for 50 mm UVAS sc, pk/5
LZX396	Calibration Verification filter

Specifications*

Measurement Technique
UV absorption measurement (2-beam technique), reagent-free

Measurement Method
SAC 254 in accordance with DIN 38404 C3

Measurement Path Length
UVAS sc Tank Sensors
1, 2, 5 and 50 mm
UVAS sc Bypass Sensors
2, 5, and 50 mm

Measurement Range
UVAS sc Tank Sensors
Choice of:
0.01 to 60 m^{-1} at 50 mm
0.1 to 600 m^{-1} at 5 mm
0 to 1500 m^{-1} at 2 mm
2 to 3000 m^{-1} at 1 mm
UVAS sc Bypass Sensors
Choice of:
0.01 to 60 m^{-1} at 50 mm
0.1 to 600 m^{-1} at 5 mm
0 to 1500 m^{-1} at 2 mm

Compensation
550 nm

Measurement Interval
≥ 1 minute

Sample Temperature
2 to 40°C (35.6 to 104°F)

Sample pH
4.5 to 9 pH

Probe Pressure Limit at Inlet
UVAS sc Tank Sensors
0.5 bar (7.25 psi) maximum
UVAS sc Bypass Sensors
n/a

Sample Flow Rate
UVAS sc Tank Sensors
n/a
UVAS sc Bypass Sensors
0.5 L/hour minimum

Sample Connection
UVAS sc Tank Sensors
n/a
UVAS sc Bypass Sensors
4 mm ID/6 mm OD hose

Cable Length
10 to 120 m (32.8 to 393.7 ft.)

Control Function
PID, time control, 2-point controller (with sc100 or sc1000)

Inspection Interval
6 months

User Maintenance
1 h / month, typical

Dimensions
70 x 333 mm
(2.75 x 13.11 in.) approximate

Weight
3.6 kg (7.9 lb.) approximate

*Subject to change without notice.

For more information, call to request Literature #2485, or visit www.hach.com

800-227-4224
Outside the United States, call 970-669-3050

Greater sensitivity in your feedwater.

- *3 electrode-controlled potential amperometry to ensure low signal drift*
- *High sensitivity*
- *Quick response time*
- *No moving parts or pumps*
- *Low reagent consumption*
- *Self-cleaning electrode*

Low Drift

The Hach 9186 Oxygen Scavenger analyzer uses a three electrode amperometric cell which offers an excellent zero stability. The working electrode, counter electrode, and reference electrode allow this stability. The working electrode is self-cleaning by turning Teflon® beads. Calibrations are done via comparison method.

Low Maintenance

No moving parts or pumps and insignificant signal drift make maintenance commonly less than 15 minutes per month.

Self-Cleaning Electrodes

Teflon® beads, driven by sample flow, circulate on the surface of the platinum electrode to prevent deposits. This reduces maintenance costs and analyzer downtime.

The Hach 9186 Oxygen Scavenger Analyzer is shipped on a panel complete with controller, probe, cable, flow cell and all hardware necessary for installation.

Prod. No.	Description
COMPLETE ANALYZER	
19186=A=3011	Hach 9186 Oxygen Scavenger Analyzer
2834453	Diisopropylamine, 99% 1L
ACCESSORIES	
09186=C=0360	Bottle cap adapter
4630600	Power cord 125V
4630800	Power cord 230V
REPLACEMENT PARTS	
09186=A=8000	Maintenance kit for 2 years**

**Maintenance kit includes 6 filters, 1 reference electrode, 1 Venturi injection nozzle, 7 plastic beads, 2 meters of 4x 6mm PE tubing.

For more information, call to request Literature #2452, or visit www.hach.com

Primary Applications

- **Pure Water/Power**
- **Industrial Water**

Specifications*

Range
5 - 500 µg/L Hydrazine
2 - 100 µg/L Carbohydrazide

Repeatability
< ± 2% of reading or < ± 1 µg/L N_2H_4 whichever is greater

Response Time
T90 approximately 60 seconds

Service Intervals
Every 4-5 weeks

Analog Output
Two 0/4-20 mA outputs, max. impedance 500 Ohms

Operating Temperature Range
5 to 45ºC (41 to 113ºF)

Weight
9.2 kg (20 lbs.)

*Subject to change without notice.

Process Instruments

Repeatable dissolved ozone measurements.

Note: sc100 shown with optional mounting panel.

- *Great for readings in low conductivity water with no interferences from oxidants or pH*
- *Reagentless analysis of ozone—ion-selective membrane separates electrolyte from sample water*
- *All-inclusive, pre-assembled panel reduces installation expenses*
- *Plug-and-play with digital controllers simplifies setup*
- *Integral temperature sensor provides more accurate readings*
- *Includes 2 years of typical maintenance parts*

Optional acidification (for cleaning) and intermittent flow accessories link in series so they only take up one sensor port in the controller.

Primary Applications

- **Drinking Water**
- **Wastewater**
- **Pure Water/Power**
- **Industrial Water**

Specifications*

Range
0.005 ppm to 2 ppm (0.005 mg/L to 2 mg/L)

Accuracy
±3% or ±10 ppb O_3 whichever is greater

Cycle Time
90% in T<90sec

*Subject to change without notice.

Prod. No.	Description
COMPLETE ANALYZERS	
6043300	9185 sc Ozone Sensor Preassembled panel including Ozone probe with integral temperature and flow control, sc100 controller, and mounting panel for sc100
6043301	Same as 6043300 but with MODBUS® RS485 output
6043302	Same as 6043300 but with MODBUS®RS232 output
SENSOR ONLY	
LXV433.99.00001	9185 sc Ozone Sensor
CONTROLLERS ONLY	
This sensor requires a Hach sc100 or sc1000 Digital Controller. See pages 388-393 for details.	
ACCESSORIES	
LZY051	9180 sc Acidification Unit Also used for cleaning
LZY052	9180 sc Intermittent Flow
LXY060	Mounting panel for sc100

For more information, call to request Literature #2407, or visit www.hach.com

See page 178 for reagents, test kits, and accessories for measuring ozone in the lab or field.

The *NEW* C1100 Ozone Sensor for bottled water, UPW pharmaceutical, and drinking water applications.

NEW!

- *Installs in-line to eliminate continual product loss*
- *Sensor refurbishment in under 5 minutes with pre-filled recharge cartridge*
- *Quick and easy air calibration*
- *Stainless steel body extends sensor life*

Principle of Operation

The sensor is constructed of two metal electrodes, the noble working electrode, immersed in an electrolytic solution, and separated by a gas permeable membrane from the sample if interest. An auxiliary guard ring electrode surrounds the working electrode to shield against the influence of other gases and improve stability.

Prod. No.	Description
C1100-T00	Electrochemical ozone sensor, Titanium version, Maximum pressure 100 bar, with Smart capability
C1100-S00	Electrochemical ozone sensor, Stainless Steel version, Maximum pressure 40 bar, with Smart capability
2956A-C	Recharge kit of 4 pre-filled cartridges with premounted 2956A membranes for C1100 ozone sensors. Includes o-rings, cotton filters, cleaning tools and dacrons

For more information, call to request Literature #2680 or visit www.hach.com

Primary Applications

- **Bottled Water**
- **Ultrapure Water Pharmaceutical**
- **Drinking Water**

Specifications*

Measuring Range
0 ppb-50 ppm O_3

Accuracy
±0.4 ppb or ±5% whichever is the greater

Repeatability
±0.4 ppb or ±5% whichever is the greater

Pressure Rating
(Stainless Steel/Titanium)
40 bars / 100 bars
580 psi / 1450 psi

Limit of Detection
0.6 ppb

Response Time
30 s

Working Operating Range
-5 to 45°C

Maximum Operating Range
-5 to 100°C

Membrane
2956A-C

Typical Flow Rate
350 mL/min

Subject to change without notice.

See page 178 for reagents, test kits, and accessories for measuring ozone in the lab or field.

Process Instruments

Optimize your filter analysis.

- *Supports up to 32 size channels and 8 analog inputs (turbidity, pH, etc.)*
- *Operates stand-alone or as part of a networked system*
- *Volumetric—all particles pass through the sensing area*

For maximum flexibility in an on-line particle counter, the Model 2200 PCX is the most versatile counter available. The 2200 PCX offers serial connection to powerful software, simultaneous 4-20 mA SCADA serial connection, and serial connection to SCADA.

Vista Software

For medium to large systems, up to to 32 sensors, Vista offers "intelligent monitoring." Intelligent monitoring minimizes total data stored, but maximizes useful information. Intelligent monitoring ensures that you capture critical information about filter-to-waste, impending filter breakthrough, or unexpected excursions. Additionally, Vista Data Management software is a high-performance package for Windows 2000/XP/Vista computers. Each provides clear tabular and graphical displays to assess plant performance with a glance.

OPC Explorer Software

If you want a direct RS-485 connection between our particle counters and your SCADA system, use the 2200 PCX Explorer. It is an OLE for Process Control (OPC) driver for Microsoft® Windows® designed to easily connect particle counters to OPC clients (such as SCADA software or data loggers).

Primary Applications

- **Drinking Water**
- **Pure Water/Power**

Specifications*

Counting Range
2-750 microns

Flow Rate
100 mL/minute

Maximum Pressure
65 psig, not more than 1 minute; 55 psig continuous

Sample Time
1 second to 24 hours

Fluid Connections Inlet
Barbed fitting with self-sealing quick disconnect for 1/4" O.D. tubing

Fluid Connections Outlet
Quick disconnect for 1/4" O.D. tubing

Power
100- 230 Vac; 50-60 Hz

Dimensions
13.8"H x 8.3"W x 7"D

Subject to change without notice.

Prod. No.	Description
MODEL 2200 PCX PARTICLE COUNTER - 115V VERSION	
5705000	2200 PCX Particle Counter with ANALOG with WATER WEIR
5704000	2200 PCX Particle Counter with WATER WEIR
MODEL 2200 PCX PARTICLE COUNTER - 230V VERSION	
5705001	2200 PCX Particle Counter with ANALOG with WATER WEIR
5704001	2200 Particle Counter with WATER WEIR
MODEL WGS 267 GRAB SAMPLING INSTRUMENT	
20844445-01	WGS 267 Grab Sampling Instrument
DATA ACQUISITION SOFTWARE - 2200 PCX	
5702500	OPC Software - 2200 PCX
5701525	Vista Software V1.3.1
DATA ACQUISITION SOFTWARE - WGS 267	
5700510	PortAll Software

**For more information, call to request Literature #4599, or visit www.hach.com**

HACH®

Be Right™

The smart choice for accurate, reliable, and dependable pH/ORP measurement.

Differential Electrode Measurement Technique

This field-proven technique uses three electrodes instead of the two used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode.

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.

Preamplifier

Process Electrode   Standard Electrode   Solution Ground Electrode

Temperature Compensator
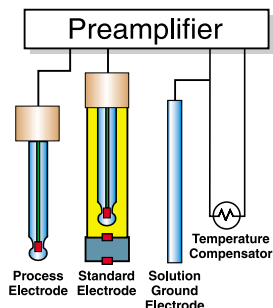
Patented Technology

The former GLI, now a Hach Company brand, invented the Differential Electrode Technique for pH measurement in 1970. The pHD™ sensor series (U.S. Patent Number 6395158B1, dated May 28, 2002) takes this field-proven technology to a new level.

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.

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.

Durable Body Materials

Both the digital and analog pH and ORP differential sensors feature a durable PEEK® body for chemical compatibility with most process solutions. For less aggressive solutions, Hach offers a Ryton® sensor in a convertible style for pH and ORP measurement. A sensor with a stainless steel body is available for immersion applications.

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

Available in analog or digital versions.

For more information, visit www.hach.com/ProcesspHSensors

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

Wide range pH glass (HF resistant glass also available)

By replacing the salt bridge and standard cell solution, Hach Differential Sensors can be regenerated for repeated use.

Primary Applications

- **Drinking Water**
- **Industrial Water**
- **Wastewater**
- **Environmental**
- **Pure Water/Power**
- **Food and Beverage**

General Specifications*

pH Range
-2 to 14 pH

Operating Temperature Range
Analog Sensor:-5 to 105°C (23 to 221°F)
Digital Sensor: -5 to 70°C (23 to 158°F)

Pressure Range
0 to 6.9 bar (100 psi)

ORP Range
-1500 to +1500 mV

Pressure Range
0 to 6.9 bar (100 psi)

Dependent on specific sensor and mounting.

pH/ORP: Differential Sensors

Prod. No.

CONTROLLER REQUIRED

For information about Hach digital and analog controllers, see pages 388-398.

pHD sc DIGITAL DIFFERENTIAL pH/ORP SENSORS

All digital sensors include built-in digital electronics and integral 10 m (33 ft.) cable terminated with connector for a digital controller. Body styles:

- *Convertible* – 1-inch NPT threads at both ends, designed for tee-mounting or other flow through mountings, and pipe mounting for immersion
- *Insertion* – no threads on the electrode end, designed for use with insertion valve assembly or flow-through cell
- *Sanitary* – 2-inch flange for a tri-clover style fitting
- *Immersion* – used with chain mounting or pipe mounting

pH Sensors

	Body Material	Body Style
DPD1P1	PEEK[1]	Convertible
DPD1P3[3]	PEEK[1]	Convertible
DPD2P1	PEEK[1]	Insertion
DPD3P1	PEEK[1]	Sanitary
DPD1R1	Ryton[2]	Convertible
DPD1R3[3]	Ryton[2]	Convertible
DPS1	Stainless Steel	Immersion

ORP Sensors

	Body Material	Body Style
DRD1P5	PEEK[1]	Convertible
DRD1P6	PEEK[1]	Convertible
DRD2P5	PEEK[1]	Insertion
DRD1R5	Ryton[2]	Convertible
DRD1R6	Ryton[2]	Convertible
DRS5	Stainless Steel	Immersion

PHD sc ANALOG SENSORS

pH Sensors

	Body Material	Body Style
PD1P1	PEEK[1]	Convertible
PD1P3[3]	PEEK[1]	Convertible
PD2P1	PEEK[1]	Insertion
PD3P1	PEEK[1]	Sanitary
PD1R1	Ryton[2]	Convertible
PD1R3[3]	Ryton[2]	Convertible

ORP Sensors

	Body Material	Body Style
RD1P5	PEEK[1]	Convertible
RD1P6	PEEK[1]	Convertible
RD2P5	PEEK[1]	Insertion
RD1R5	Ryton[2]	Convertible
RD1R6	Ryton[2]	Convertible

[1]Polyetheretherketone; [2]Polyphenelene Sulfide; [3]HF resistant glass

DIGITAL GATEWAY

6120500   Use the Digital Gateway to connect pHD analog sensors to a Hach digital controller.

Prod. No.

pHD sc DIGITAL AND PHD ANALOG SENSOR ACCESSORIES

Cables

Extension cables are used only with digital sensors or digital gateways when connecting to a digital controller.

6122400   Digital Extension Cable, 1 m (3.2 ft.)
5796000   Digital Extension Cable, 7.7 m (25 ft.)
5796100   Digital Extension Cable, 15 m (50 ft.)
5796200   Digital Extension Cable, 31 m (100 ft.)

Interconnect cables are used only with analog sensors, junction box, and controller.

1W1100   Analog Interconnect Cable, order per foot

Digital Termination Box

Required when the length of cable between the digital sensor/digital gateway and a digital controller is between 100 m (328 ft.) and 1000 m (3280 ft.)

5867000   Digital Termination Box

Analog Junction Box

Required when the length of cable between the analog sensor and analog controller is greater than standard length of sensor cable. Each junction box includes terminal strip and gasket.

60A2053   Junction Box, Surface-mount, aluminum (includes mounting hardware)
60A9944   Junction Box, Pipe-mount, PVC (for 1/2-inch diameter pipe, includes mounting hardware)
60G2052   Junction Box, Pipe-mount, PVC (for 1-inch diameter pipe, includes mounting hardware)
76A4010-001   Junction Box, NEMA 4X (no mounting hardware included)

pHD sc Digital and pHD Analog Sensor Reagents and Standards

25M1A1025-115   Standard Cell Solution, to replenish standard cell chamber in Hach pHD sensors while replacing salt bridge, 500 mL
25M8A1002-101   Gel Powder, for >95°C applications, 2 g

pH Buffers

	Description	Volume
2283549	pH 7	500 mL (1 pint)
2283449	pH 4	500 mL (1 pint)
2283649	pH 10	500 mL (1 pint)

ORP Reference Solutions (in resealable plastic bottles)

	Description	Volume
25M2A1001-115	200 mV	500 mL (1 pint)
25M2A1002-115	600 mV	500 mL (1 pint)

pH/ORP systems with Class I Division II safety classification are available— please contact your Hach representative.

For additional information and available mounting hardware options, call Hach or download product data sheet (Lit. #2467) from www.hach.com/ProcesspHSensors.