



***Environmental***

*Be Right. The Environment is Worth it.*

To: State of West Virginia Department of Administration and Purchasing  
Attn: Mr. Chuck Bowman  
Ref: RFQ DEP14467

Thank you for allowing Hach Environmental the opportunity to submit a quote with State of West Virginia. Included are signed documents required with a Hach Environmental quote and product literature.

If you need anything else, please let me know.

*Jerry Ruckle*

Customer Support Advisor  
Hach Environmental Company  
sales@hachenvironmental.com  
1-800-949-3766 ext.6445



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
 DEP14467

PAGE  
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF:  
 CHUCK BOWMAN  
 304-558-2157

VENDOR

RFQ COPY  
 TYPE NAME/ADDRESS HERE

SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPARTMENT OF  
 OFFICE OF WATER RESOURCES  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304 304-926-0499

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
10/02/2008				

BID OPENING DATE: 10/22/2008 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	10	EA		885-95	* 5,680 <sup>00</sup>	* 56,800 <sup>00</sup>
<p>MULTI-PARAMETER WATER QUALITY SONDE</p> <p>THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S DIVISION OF WATER RESOURCES, IS SOLICITING BIDS FROM INTERESTED AND QUALIFIED VENDORS TO PROVIDE TEN (10) MULTI-PARAMETER WATER QUALITY SONDES PER THE FOLLOWING SPECIFICATIONS, BID REQUIREMENTS, AND TERMS AND CONDITIONS.</p> <p>VENDOR IS TO INDICATE LUMP SUM PRICE FOR TEN (10) SONDES INCLUSIVE OF ALL FREIGHT AND DELIVERY COSTS.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT MAY BE DEEMED NULL AND VOID, AND TERMINATED WITHOUT FURTHER ORDER.</p> <p>THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4(F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Jerry Ruckle</i>	TELEPHONE 800.949.3166	DATE Oct 15 2008
TITLE Inside Sales Advisor	FEIN 420704420	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
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CHUCK BOWMAN 304-558-2157

VENDOR

RFQ COPY  
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SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPARTMENT OF  
 OFFICE OF WATER RESOURCES  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304 304-926-0499

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
10/02/2008				

BID OPENING DATE: 10/22/2008 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p><b>NOTICE</b></p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION            PURCHASING DIVISION            BUILDING 15            2019 WASHINGTON STREET, EAST            CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: CB-23</p> <p>RFQ. NO.: DEP14467</p> <p>BID OPENING DATE: 10/22/2008</p> <p>BID OPENING TIME: 1:30 PM</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID: 970-461-3921</p> <p>-----</p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY): <i>Jerry Ruckle</i></p> <p>-----</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS		
SIGNATURE <i>Jerry Ruckle</i>	TELEPHONE <i>800.949.3766</i>	DATE <i>Oct 15, 2008</i>
TITLE <i>Inside Sales Advisor</i>	FEIN <i>420704420</i>	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia

**VENDOR PREFERENCE CERTIFICATE**

Certification and application\* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

- 1. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,  
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,  
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
- 2. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
- 3. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
- 4. **Application is made for 5% resident vendor preference for the reason checked:**  
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
- 5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**  
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
- 6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**  
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Haech Environmental      Signed: Jerry Kuchle  
Date: Oct 13, 2008      Title: Inside Sales Advisor

\*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

**Logging (Deployable) Multi-parameter Water Quality Sondes**  
**Quantity:10**

**(YSI 6920-V2-1 or equivalent)**

- **Internally powered to allow automatic hourly logging of data for at least 75 days.**
- **Includes temperature, pH, specific conductance, and dissolved oxygen (Optical DO with cleaner/wiper for extended deployments) sensors (see ind. sensor specs below). All sensors must be field replaceable.**
- **Capability to add other optical sensors: Chlorophyll, Turbidity, Rhodamine, and Blue-green algae.**
- **Includes storage cup, calibration cup, weighted sensor guard, and maintenance kits**
- **RS-232 and SDI-12 interface**
- **Operating temperature: -5 to 50° C**
- **Internal memory: 120,000 measurements minimum**
- **Maximum depth: 200m**

**Sensors**

**Conductivity**

Range: 0-100 mS/cm  
Accuracy:  $\pm$  (0.5% of reading + 0.001 mS/cm)  
Resolution: 0.001 mS/cm

**pH**

Range: 0 to 14 pH units  
Accuracy: +/- 0.2 units  
Resolution: 0.01 units

**DO-Optical**

Range: 0 to 50 mg/L  
Accuracy: +/- 0.1 mg/L for 20mg/L or less  
              +/- 0.2 mg/L for over 20 mg/L  
Resolution: 0.01 mg/L

**Temperature**

Range: -5 to 50 degrees C  
Accuracy: +/- 0.15 degrees C  
Resolution: 0.01 degrees C

STATE OF WEST VIRGINIA  
Purchasing Division

# PURCHASING AFFIDAVIT

**VENDOR OWING A DEBT TO THE STATE:**

*West Virginia Code* §5A-3-10a provides that: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

**PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:**

*West Virginia Code* §21-1D-5 provides that: Any solicitation for a public improvement construction contract shall require each vendor that submits a bid for the work to submit at the same time an affidavit that the vendor has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code. A public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the West Virginia Code may take place before their work on the public improvement is begun.

**ANTITRUST:**

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

**LICENSING:**

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

**CONFIDENTIALITY:**

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit [www.state.wv.us/admin/purchase/privacy](http://www.state.wv.us/admin/purchase/privacy) for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and is in compliance with the requirements as stated.

Vendor's Name: Hach Environmental

Authorized Signature: Jerry Buckle Date: Oct. 13, 2008



# Environmental

Be Right. The Environment is Worth it.

Hach Environmental  
5600 Lindbergh Drive  
Loveland, CO 80539-0608  
Phone: (970) 669-3050  
Fax: (970) 461-3921  
Email: Sales@HachEnvironmental.com  
Web: www.HachEnvironmental.com

Quote Number: 04U100800003  
Quote Date: 10/13/2008  
Quote Valid Until: 11/12/2008



**Quote For:**  
Department of Environmental Protection  
ATTN: Chuck Bowman  
601 57th Street SE

**Account Manager:**  
Bill Harrington

**Quoted By:**  
Jerry Ruckle

Charleston, WV 25304

Phone: (304) 926-0499  
Fax:  
Email:

**Quote Reference:**

**Comments:**

RFQ DEP14467

Part Number	Item Name Item Description	Qty	Unit Price	Discount	Ext. Price
DS5XBASE	DS5X (Extended Deployment) Multiprobe Includes: <ul style="list-style-type: none"> <li>• Central cleaning unit that removes fouling from D.O., pH, ISE's, and Fluorescence sensors (Chlorophyll a, Blue-green Algae and Rhodamine WT)</li> <li>• 120,000 measurements Internal Memory</li> <li>• Temperature</li> <li>• RS-232, SDI-12, and RS-485 Data formats</li> <li>• Weighted sensor guard</li> <li>• Calibration and storage cups</li> <li>• Maintenance kits</li> <li>• Manual</li> <li>• Hydras 3 LT software</li> <li>• 2-year warranty</li> <li>• PDA software available</li> </ul>	10	\$4,350.00	20 %	\$34,800.00
007455	LDO Luminescent Dissolved Oxygen measurement technology. No membranes, screw off caps, EPA recommended method. Validation studies for this technology all performed by Hach for EPA & ASTM.	10	\$1,300.00	20 %	\$10,400.00
S5COND	Graphite conductivity sensor Non-Corrodible Graphite Electrodes (includes Salinity, Resistivity and Total Dissolved Solids)	10	\$375.00	20 %	\$3,000.00
S5PH	pH Sensor	10	\$475.00	20 %	\$3,800.00
S5PHREF	Standard pH Reference (rebuildable)	10	\$0.00	20 %	\$0.00

**Quote Total: \$56,800.00**

Thank you for the opportunity to provide this quotation, Please do not hesitate to contact us if you have any questions or need additional information regarding this quotation.

Please send confirming purchase orders to the address or fax number above.

**Payment Terms:** Subject to credit review  
**Delivery ARO:** Within 30 Days  
**FOB:** ORIGIN

**ORDER TERMS:**

- \* Please reference the quotation number on your purchase order.
- \* Sales tax is not included. Applicable sales tax will be added to the invoice based on the U.S. destination, if applicable provide a valid resale/exemption certificate.
- \* Shipments will be prepaid and added to invoices unless otherwise specified.
- \* Pricing included in this quotation applies to domestic sales only. Equipment quoted operates with standard U.S. supply voltage.
- \* Hach standard terms and conditions apply to all sales.
- \* Freight Charge Schedule Attached.
- \* Send confirming purchase order for orders \$25,000 or more to address or fax number above.





**Be Right™**

**HACH COMPANY**

**Headquarters**  
 P.O. Box 389  
 5600 Lindbergh Drive  
 Loveland, CO 80539-0389

**Purchase Orders**  
 PO Box 608  
 Loveland, CO 80539-0608

**WebSite:** www.hach.com

**U.S.A.**  
 Phone: 800-227-4224  
 Fax: 970-669-2932  
 E-Mail: orders@hach.com  
 quotes@hach.com  
 techhelp@hach.com

**Export**  
 Phone: 970-669-3050  
 Fax: 970-461-3939  
 Email: intl@hach.com

**Remittance**  
 2207 Collections Center Drive  
 Chicago, IL 60693

**Wire Transfers**  
 Bank of America  
 231 S. LaSalle St.  
 Chicago, IL 60604  
 Account: 8765602385  
 Routing (ABA): 071000039

Quotation Addendum

Dear Customer:

Thank you for your inquiry. The attached quotation provides prices for the products of interest to you. If you have any concerns or questions about this quotation, please call us. We look forward to serving you.

**MAIL PURCHASE ORDERS TO:** HACH Company, P.O. Box 608, 5600 Lindbergh Drive, Loveland, CO 80539-0608, or fax to 970-669-2932. Use **Quotation Bid Reference Number when placing order.** Orders sent any other way might be delayed in processing.

**SALES TAX**

Sales Tax is not included in the attached quotation. Applicable sales and usage taxes will be added to your invoice, at the time of order, based on U.S.A. destination of goods, unless a valid resale/exemption certificate for destination state is provided to the above address or fax number, attention of the Tax Dept.

**REAGENT DELIVERY PROGRAM (Only USA customers for products to be shipped and used in the USA)**

The Hach Reagent Delivery Program makes it easy for you to receive fresh reagents exactly when you need them. By forecasting your reagent supply requirements for the year, you can arrange for frequently used reagents to be automatically shipped at designated intervals. The Hach Reagent Delivery Program requires a minimum of four shipments per year. Reagent orders of \$5,000 or more qualify for a volume discount. Please call Customer Service at one of the toll free numbers listed for additional information.

**TECHNICAL SUPPORT**

If you have any technical questions about products or procedures, you may contact us via e-mail at **techhelp@hach.com**. Please include a description of the technical issue, your name and your Hach account number (if available). We suggest including a phone number in case our technical staff needs to call you. We respond to e-mail inquiries within 24 hours. If you prefer, you can call our technical support staff at one of the toll-free numbers listed on this document.

**SERVICE PARTNERSHIP PROGRAMS AND START-UP**

When you purchase a new process instrument, you have the opportunity to ensure continued performance of your instruments. Various Service Partnership Programs are available to help you enjoy the confidence and security of knowing that your operations are well maintained and functioning smoothly. Contact a Hach representative at one of the toll free numbers for information on all Service programs, installation, start-up or operator training.

**FREIGHT CHARGES** <sup>1, 2, 3</sup>

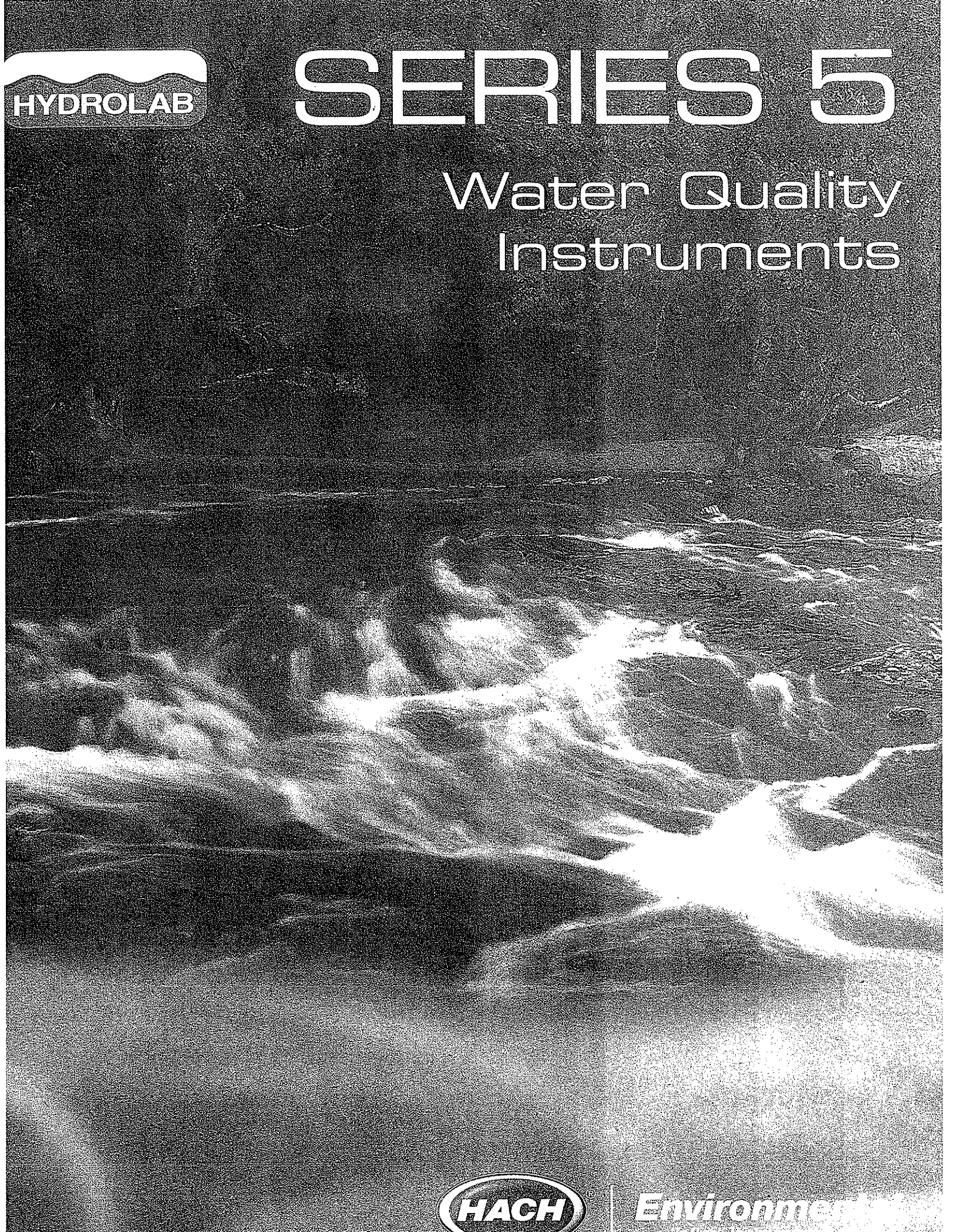
Total Price of Merchandise Ordered	Standard Surface (Mainland USA)	Second Day Delivery (Mainland USA)	Next Day Delivery (Mainland USA)	Second Day Delivery (Alaska & Hawaii)	Next Day Delivery (Alaska & Hawaii)
\$0.00 - \$24.99	\$9.95	\$22.95	\$42.95	\$34.95	\$64.95
\$25.00 - \$49.99	\$12.95	\$30.95	\$58.95	\$44.95	\$89.95
\$50.00 - \$249.99	\$15.95	\$47.95	\$91.95	\$64.95	\$130.95
\$250.00 - \$499.99	\$26.95	\$67.95	\$144.95	\$87.95	\$173.95
\$500.00 - \$999.99	\$36.95	\$96.95	\$198.95	\$121.95	\$240.95
\$1,000.00 - \$2,499.99	\$59.95	\$119.95	\$229.95	\$141.95	\$277.95
\$2,500.00 - \$4,999.99	\$69.95	\$159.95	\$269.95	\$166.95	\$308.95
\$5,000.00 - \$9,999.99	\$99.95	\$184.95	\$310.95	\$195.95	\$334.95
Over \$10,000	2% of Net Order Value	4% of Net Order Value	6% of Net Order Value	4% of Net Order Value	6% of Net Order Value

- 1 Freight charges shown are only applicable to orders billing and shipping to U.S. destinations. Freight charges will be prepaid and added to invoice. Freight for the Reagent Delivery Program is charged on each shipment release and is based on the total price of each shipment release. Freight charges are subject to change without notice.
- 2 Additional freight charges will be applied to orders containing bulky and/or heavy items.
- 3 Orders shipping to Alaska or Hawaii: Additional freight charges may be applied at time of order processing. Second Day and Next Day delivery is not available to all destinations.



# SERIES 5

Water Quality  
Instruments



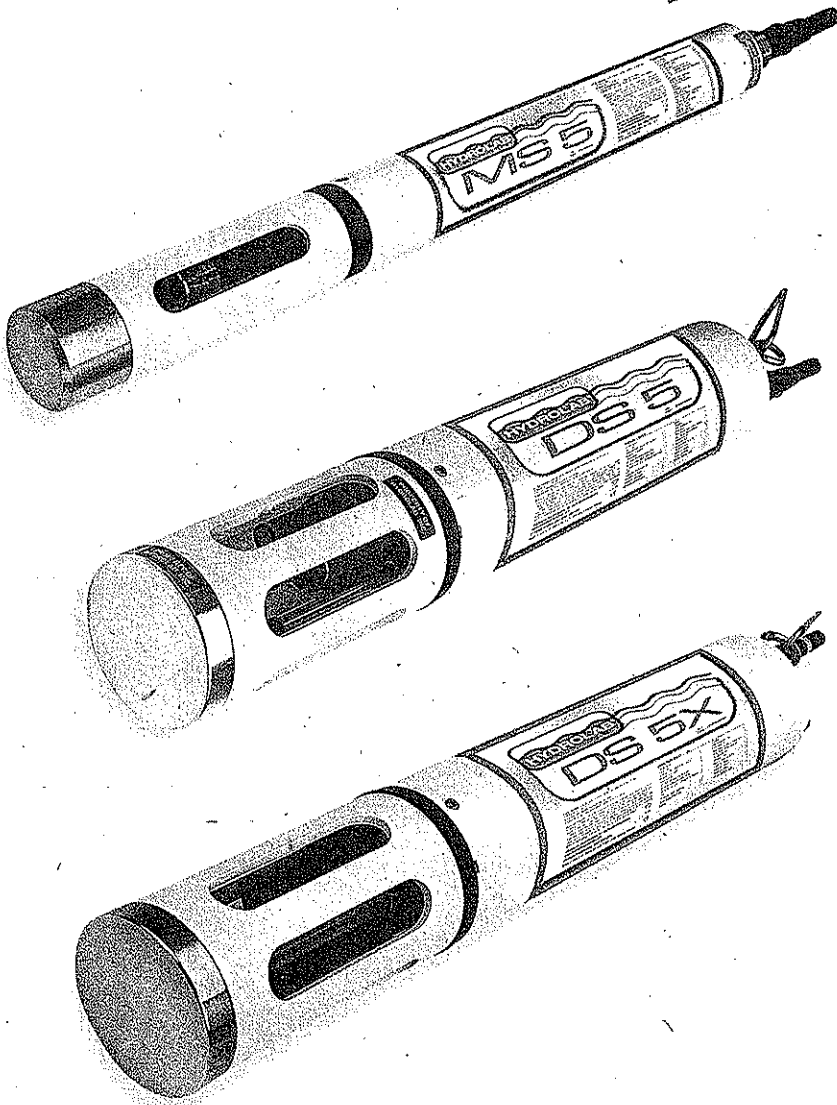
*Environmental*



# SERIES 5



## SONDES



### MS5

- Four built-in expansion ports configured to fit your specific needs
- Measures up to 12 parameters simultaneously
- Compact and lightweight 1.75" diameter housing fits into groundwater wells
- Used for attended or unattended monitoring

### DS5

- Seven built-in expansion ports configured to fit your specific needs
- Measures up to 16 parameters simultaneously
- Capable of measurements using any of Hydrolab's 15 sensors\*
- Used for attended or unattended monitoring

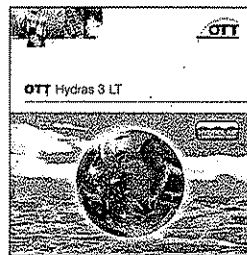
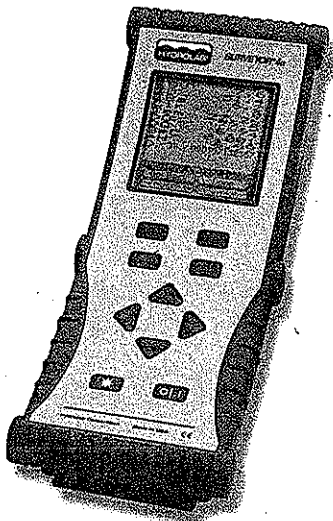
### DS5X

- Ideal for "X-tended" deployments in environments where fouling and sediment are abundant
- Central cleaning system wipes away fouling from adjacent sensors to reduce the maintenance frequency
- Seven built-in expansion ports configured to fit your specific needs
- Measures up to 16 parameters simultaneously

## COMMUNICATIONS

### SURVEYOR

- Complete set-up capability allows users to leave their laptops in their offices
- Designed specifically for use in severe field conditions, the Surveyor can take a beating on land or in the water and still deliver your data
- Displays data in real-time or can store up to 375,000 measurements
- Oversize screen with backlight allows data to be viewed in any conditions
- Available with optional GPS and Barometric Pressure capabilities



### HYDRAS 3 LT

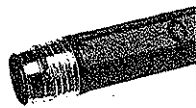
- Real-time, multi-parameter time series graphing and vertical profiling
- Simple, point and click calibration of any parameter
- One-click download for field data collection
- User-programmable stability check on each sensor
- Included free with every Series 5 sonde

# Turner Quality Instruments

## SENSORS

### Hach LDO®

- Longest lasting calibrations
- Features the best accuracy available for DO measurement
- No membranes so maintenance is simple
- Clark Cell also available



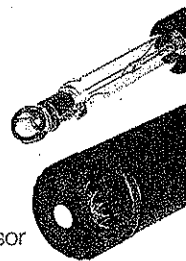
### Conductivity

- Open cell allows reliable measurements in any environmental condition—sediment falls to the bottom and bubbles rise to the top



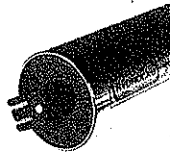
### pH

- Reference electrode is easily refilled in seconds— independent of the pH sensor
- pH sensor does not need replacement when reference electrode is depleted; simply refill the reference



### Turbidity: Self-Cleaning

- User-programmable self-cleaning system can perform up to 10 cleaning cycles before each reading
- 3000 NTU range allows Turbidity tracking even during rain storms or other events that could cause abnormally high readings
- 4-Beam and Standard Turbidity also available



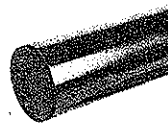
### Depth

- Optimized for depths down to 10m, 25m, 100m, or 200m



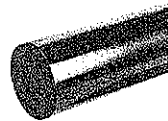
### Chlorophyll a

- Ultra-compact size designed by Turner Designs specifically for integration into Hydrolab sondes
- Provides the most accurate measurement of Chlorophyll a because of electronic filtration of ambient light, efficient optical coupling, and quality optical components.



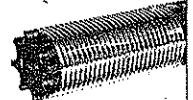
### Blue-Green Algae

- Real-time measurement identifies potential algal blooms before they become problematic, allowing time for corrective action
- Ultra-compact size designed by Turner Designs specifically for integration into Hydrolab sondes
- Provides the most accurate measurement of phycocyanin or phycoerythrin because of electronic filtration of ambient light, efficient optical coupling and quality optical components



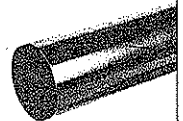
### Total Dissolved Gas

- Real-time measurement indicates water supersaturated with atmospheric gases, which can cause gas bubble gill disease in aquatic organisms



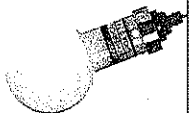
### Rhodamine WT

- Ultra-compact size designed by Turner Designs specifically for integration into Hydrolab sondes
- Provides the most accurate measurement of Rhodamine WT because of electronic filtration of ambient light, efficient optical coupling, and quality optical components



### PAR

- Provides a real-time measurement of sunlight intensity, which influences biota that rely on photosynthesis for nutrition



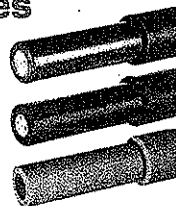
### Temperature

- Provides critical compensation for Dissolved Oxygen, Conductivity, pH, and nutrient sensors
- Included with every sonde



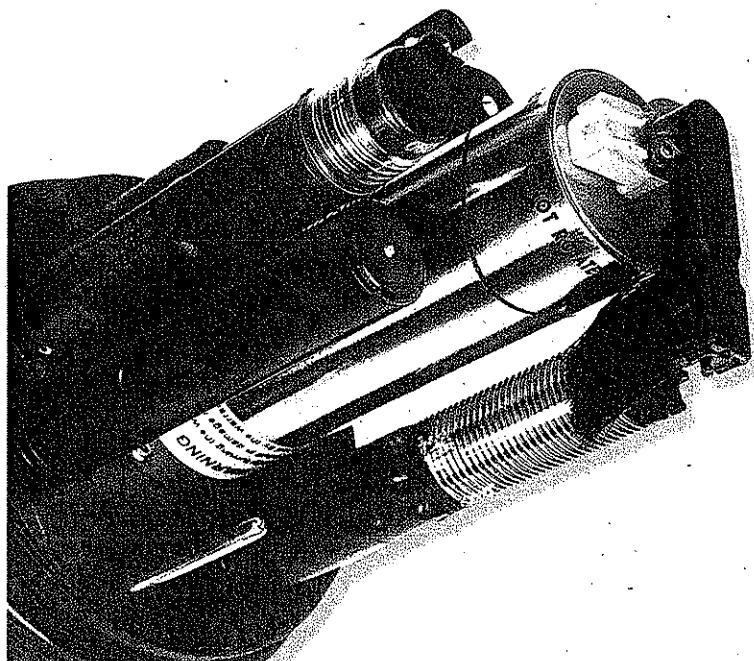
### Ion-Selective Electrodes

- Available for monitoring Ammonia/ Ammonium, Nitrate, or Chloride



### ORP

- Uses a simple platinum band that donates or accepts electrons to monitor chemical reactions, quantify ion activity, or determine the oxidizing or reducing properties of a solution



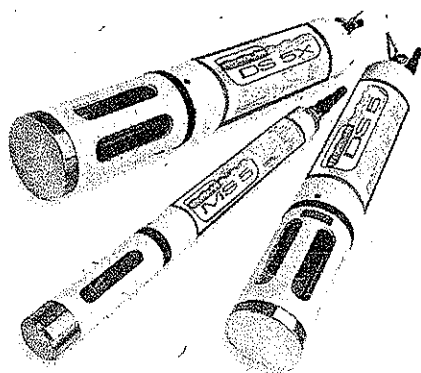
# SPECIFICATIONS

## Sondes

Size	Weight	Computer Interface	Operating Temperature
<i>DataSonde:</i> Outer diameter – 3.5"/8.9 cm Length – 23"/58.4 cm	<i>DataSonde:</i> 7.4 lbs/3.35 kg (typical)	RS-232, SDI-12, RS-485	-5 to 50°C
<i>MiniSonde:</i> Outer diameter – 1.75"/4.4 cm Length – 29.5"/74.9 cm (with battery pack)	<i>MiniSonde:</i> 2.9 lbs/1.3 kg (typical with battery pack)	<b>Memory</b> 120,000 measurements	<b>Maximum Depth</b> 225 m
		<b>Battery Supply</b> <i>DataSonde:</i> 8 C batteries <i>MiniSonde:</i> 8 AA batteries	

## Sensors

	Range	Accuracy	Resolution
Hach LDO™	0 to 20 mg/L	± 0.1 mg/L @ < 8mg/L ± 0.2 mg/L @ > 8mg/L	0.01 mg/L
Polarographic DO	0 to 50 mg/L	± 0.2 mg/L @ < 20mg/L ± 0.6 mg/L @ > 20 mg/L	0.01 mg/L
Conductivity	0 to 100 mS/cm	± 0.5% of reading ± 0.001 mS/cm	4 digits
pH	0 to 14 pH units	± 0.2 units	0.01 units
Turbidity, Self-Cleaning	0-3000 NTU	<i>Compared to StablCal</i> 1% up to 100 NTU 3% from 100-400.NTU 5% from 400-3000 NTU	0.1 NTU from 0-400 NTU; 1 NTU for >400 NTU
Turbidity, 4-Beam	0-1000 NTU	5% of reading; or ± 1 NTU	0.1 NTU from 0-100 NTU; 1 NTU for >100 NTU
Depth	0 to 10m (Vented Level) 0 to 25m 0 to 100m 0 to 200m	± 0.003 meters ± 0.05 meters ± 0.05 meters ± 0.1 meters	0.001 meters 0.01 meters 0.01 meters 0.1 meters
Chlorophyll a	<i>Dynamic Range</i> Low sensitivity: 0.03-500µg/L Med. sensitivity: 0.03-50µg/L High sensitivity: 0.03-5µg/L	± 3% for signal level equivalents of 1 ppb rhodamine WT dye or higher using a rhodamine sensor	0.01 µg/L
Blue-Green Algae	<i>Dynamic Range</i> Low sensitivity: 100-2,000,000 cells/mL Med. sensitivity: 100-200,000 cells/mL High sensitivity: 100-20,000 cells/mL	± 3% for signal level equivalents of 1 ppb rhodamine WT dye or higher using a rhodamine sensor	20 cells/mL
<b>Ion Selective Electrodes</b>			
<i>Ammonia</i> Max Depth: 15 meters	0 to 100 mg/L-N	Greater of ± 5% of reading, or ± 2 mg/L-N	0.01 mg/L-N
<i>Nitrate</i> Max Depth: 15 meters	0 to 100 mg/L-N	Greater of ± 5% of reading, or ± 2 mg/L-N	0.01 mg/L-N
<i>Chloride</i> Max Depth: 15 meters	0.5 to 18000 mg/L	Greater of ± 5% of reading, or ± 2 mg/L	4 digits
<b>TDG (Total Dissolved Gas)</b>	400 to 1300 mmHg	± 0.1% of span	1.0 mmHg
<b>ORP</b>	-999 to 999 mV	± 20 mV	1 mV
<b>Rhodamine WT</b>	<i>Dynamic Range</i> Low sensitivity: 0.04-1000 ppb Med. sensitivity: 0.04-100 ppb High sensitivity: 0.04-10 ppb	± 3% for signal level equivalents of 1 ppb rhodamine WT dye or higher using a rhodamine sensor	0.01 ppb
<b>PAR</b>	0 to 10,000 µmol s <sup>-1</sup> m <sup>-2</sup>	± 5% of reading, or ± 1 µmol s <sup>-1</sup> m <sup>-2</sup>	1 µmol s <sup>-1</sup> m <sup>-2</sup>
<b>Temperature</b>	-5 to 50°C	± 0.10°C	0.01°C



**Environmental**  
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**HYDROLAB®**

## **SUPERIOR SENSOR TECHNOLOGY**

Hydrolab sondes are built with the industry's best sensor technology, to provide high quality data that you can trust.

## **UNSURPASSED RELIABILITY**

Hydrolab sondes are built to withstand the harshest environmental conditions so you can be confident that your data will be correct at every site, every time.

## **LONG-TERM VALUE**

Hydrolab sondes are built to last, easy to use, and simple to maintain—saving you time and money throughout your ownership of the instrument.



**Be Right.  
The Environment is Worth it.**