TYPICAL PERFORMANCE SPECIFICATIONS

	RANGE	ACCURACY	RESOLUTION	AVAILABLE INSTRUMENT *
Temperature	-5 to 50° C	±0.10° C	0.01° C	D, M
Specific Conductance	0 to 100 mS/cm	±1% of reading; ±0.001 mS/cm	4 digits	D, M
pH	0 to 14 units	±0.2 units	0.01 units	D, M
Dissolved Oxygen	0 to 50 mg/L	±0.2 mg/L at = 20 mg/L ±0.6 mg/L at > 20 mg/L	0.01 mg/L	D, M
ORP	-999 to 999 mV	±20 mV	1 mV	D, M
Depth Vented Level	0 to 10 m	±0.003 m	0.001 m	D, M
0-25 m	0 to 25 m	±0.05 m	0.01 m	D, M
0-100 m	0 to 100 m	±0.05 m	0.01 m	D, M
0-200 m	0 to 200 m	±0.1 m	0.1 m	D, M
Salinity	0 to 70 ppt	±0.2 ppt	0.01 ppt	D, M
4-Beam Turbidity	0 to 1000 NTU	±5% of reading; ±1 NTU	0.1 NTU (<100 NTU) 1 NTU (=100 NTU)	D
Self-Cleaning Turbidity	0 to 3000 NTU	±1%, up to 100 NTU ±3%, 100-400 NTU ±5%, 400-3000 NTU	0.1, up to 400 NTU 1.0, 400-3000 NTU	D
Ammonium/Ammonia	0 to 100 mg/L-N	Greater of ±5% of reading or ±2 mg/L-N (typical)	0.01 mg/L-N	D, M
Nitrate	0 to 100 mg/L-N	Greater of ±5% of reading or ±2 mg/L-N (typical)	0.01 mg/L-N	D, M
Chloride	0.5 to 18,000 mg/L	Greater of ±5% of reading or ±2 mg/L (typical)	4 digits	D, M
Total Dissolved Gas	400 to 1300 mmHg	±0.1% of span	1.0 mmHg	D, M
Ambient Light	0 to 10,000 µmol s-1m-2	±5% of reading or ±1 µmol s-1m-2	1 µmol s-1m-2	D
Chlorophyll a	0.03 to 150 µg/L	±3% of reading ±0.1 µg/L	0.1 µg/L	D
Barometric Pressure	500 to 850 mmHg	±10 mmHg	0.1 mmHg	S
Global Positioning System	-90 to 90° Latitude -180 to 180° Longitude	25 m CEP (50%) without SA and DGPS 2 m CEP (50%) with DGPS	0.1"	S

* D = DataSonde 4a M = MiniSonde 4a S = Surveyor 4a

INSTRUMENT SPECIFICATIONS

Computer Interface	RS-232, SDI-12
Memory	DataSonde 4a – 120,000 measurements (512Kb) MiniSonde 4a – 120,000 measurements (512Kb) Surveyor 4a – 375,000 measurements (1498Kb)
Battery Supply	DataSonde 4a – 8 C batteries MiniSonde 4a – 8 AA batteries Surveyor 4a – rechargeable nickel metal hydride
Typical Battery Life (1-hour intervals)	DataSonde 4a – 313 days MiniSonde 4a – 114 days Surveyor 4a – 12-16 hours
Operating Temperature	-5 to 50° C
Maximum Depth	DataSonde 4a & MiniSonde 4a – 225 m
Size	DataSonde 4a: Outer diameter – 3.5"/8.9 cm; Length – 23"/58.4 cm; Weight – 7.4 lbs/3.35 kg MiniSonde 4a: Outer diameter – 1.75"/4.4 cm; Length – 21"/53.3 cm; Weight – 2.2 lbs/1.0 kg – with extended battery pack: 29.5"/74.9 cm, Weight – 2.9 lbs/1.3 kg Surveyor 4a: 11x4x5"/27.9x10.2x3.8 cm, Weight – 2 lbs/0.9 kg

Campbell Scientific Canada Corp.

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HYDROLAB®
A HACH COMPANY BRAND

BENEFITS & SPECIFICATIONS

- Uses a pH glass sensor
- Both feature a single refillable, flowing junction reference electrode OR optional low ionic strength electrode
- Standard reference electrode is more reliable, lasts longer, is easily maintained, and refills in seconds
- Reference electrode is maintained and refilled independently of pH and/or ORP
- Two-year warranty

pH SENSOR

Range	0 to 14 pH units
Accuracy	±0.2 units
Resolution	0.01 units

ORP SENSOR

Range	-999 to 999 mV
Accuracy	±20 mV
Resolution	1 mV

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DISSOLVED OXYGEN SENSOR

- Uses field-proven Clark Cell technology
- Provides a continuous steady-state reading
- Low maintenance – no need to recondition the sensor
- Two-year warranty

Range	0 to 50 mg/L
Accuracy	±0.2 mg/L for 20 mg/L or less ±0.6 mg/L for over 20 mg/L
Resolution	0.01 mg/L

SPECIFIC CONDUCTANCE SENSOR

- Hydrolab uses the four graphite electrode cell methodology:
  - Increases sample exchange
  - Open cell design provides more reliable data
  - Reduces measurement error due to fouling and air bubbles (bubbles rise above the electrodes out of the way and debris and sediment fall below)
  - Easily maintained without damaging electrodes
  - Resists corrosion
- Also measures salinity, resistivity, and TDS
- Two-year warranty

Range	0 to 100 mS/cm
Accuracy	±1% of reading, ±0.001 mS/cm
Resolution	4 digits

SAMPLE CIRCULATOR

Only Hydrolab offers a sample circulator for more reliable readings. The DataSonde 4*a* and MiniSonde 4*a* integrated sample circulator facilitates fast, accurate, steady-state dissolved oxygen measurements. Other sensors receive similar benefits.

- Creates a flow of water past the sensors
- Provides “sufficient sample flow across membrane surface” in accordance with Standard Methods Article 4500-OG
- Reduces response time – important to detect moving contaminant plumes or movement within water column
- Reduces sensor fouling – sweeps away inert debris and biological growth
- Allows deployment in any environment, even in poorly mixed areas

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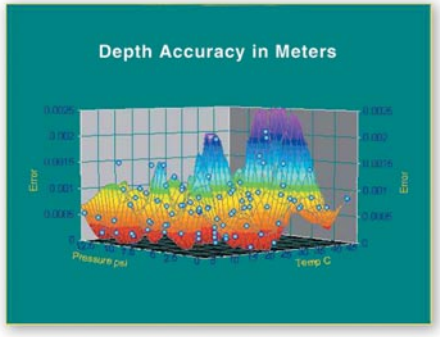
BENEFITS & SPECIFICATIONS

Hydrolab offers high-stability, custom made pressures sensors with four range options, available on both the DataSonde 4*a* and MiniSonde 4*a*.

- Exceptional accuracy for 10m, 25m, 100m, and 200m
- Two-year warranty



0 to 10 meters **Vented Level**

Range	0 to 10 meters
Accuracy	±0.003 meters
Resolution	0.001 meters

0 to 25 meters

Range	0 to 25 meters
Accuracy	±0.05 meters
Resolution	0.01 meters

0 to 100 meters

Range	0 to 100 meters
Accuracy	±0.05 meters
Resolution	0.01 meters

0 to 200 meters

Range	0 to 200 meters
Accuracy	±0.1 meters
Resolution	0.1 meters

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BENEFITS & SPECIFICATIONS

Hydrolab's self-cleaning turbidity offers several benefits for operators:

- ISO 7027 compliant
- Extended range with exceptional resolution
- Utilizes small aperture technique to reduce false readings from particulates and other debris
- Fixed parking position to ensure consistent data collection after each cleaning cycle
- Excellent performance in low NTU environments due to enhanced noise cancelling technique
- Two-year warranty

Range	0 to 3000 NTU
Accuracy	±1% up to 100 NTU; ±3% from 100-400 NTU; ±5% from 400-3000 NTU using StablCal®
Resolution	0.1 NTU from 0-400 NTU; 1 NTU for >400 NTU
Linearity	±1% from 0-100 NTU; ±3% from 100-400 NTU; ±5% from 400-3000 NTU
Temperature Coefficient	±0.05%/ºC
Zero NTU Drift	±3 mV

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