Equipment Specification

1) The instrument shall be a platform with universal ports that can accommodate a variety of sensors, which can be used or reconfigured at any time by the end user in the field. Similarly, the sensors shall have hermaphroditic wet-mateable connectors, allowing them to be plugged interchangeably into any sensor port.
2) The instrument shall be designed to withstand the harsh conditions of field use by using rugged materials, including Titanium, laser-welded probe housings to resist leaks; wet-mateable connectors that resist corrosion; impact-resistant and chemical-resistant Xenoy polymer reinforced housing; and sapphire glass on optical sensor windows.
3) The instrument shall be capable of having connectorized field-replaceable probes for the Dissolved Oxygen, Conductivity, Temperature, pH, ORP, Turbidity, Chlorophyll/Blue-Green Total Algae, fDOM, and central wiper. These sensors shall be capable of being removed without opening the sonde or exposing the internal electronics to the environment.
4) The instrument shall provide low-power consumption for extended deployments and must be able to measure Temperature, Conductivity, Depth, pH, ORP, Turbidity, Chlorophyll/Blue-Green Total Algae, and Optical DO for duration of 90 days at a 15-minute sampling interval.
5) The instrument shall be capable of operating in a self-powering mode from an internal power supply using a set of four (4) "D" cell alkaline batteries, or rechargeable batteries that are available for purchase in most localities around the world. Batteries shall be removable via an external hatch without exposing its electronics. The instrument shall also have the capability of being powered by an external 12VDC-power supply through an interface cable or via USB through the use of a Signal Output Adapter.
6) The instrument shall use a dissolved oxygen sensor that employs the Luminescent "Life Time" Dissolved Oxygen measurement technique. This sensor shall be capable of measuring dissolved oxygen in the range of 0-20 mg/l with an accuracy of +/- 0.1 mg/l; and in the range of 0-200% saturation with an accuracy of +/- 1% air saturation with a response time of T63<5 sec under all or zero flow conditions without the use of a stirring device. In addition the sensor must be able to measure dissolved oxygen in the range of 20-50 mg/l with an accuracy spec at this range of +/- 5% of the reading; and in the range of 200-500% saturation with an accuracy spec of +/- 5% of the reading. The optical DO sensor membrane must be field replaceable component that does not require the use of tools to replace. The Dissolved Oxygen sensor shall be able to be calibrated with a one-point (saturated air or water) or a two-point (zero DO and saturated air or water) oxygen calibration.
7) The instrument shall provide antifouling protection with a central motorized wiper with rotating nylon-bristle brush that removes biofouling from all optical and pH sensors. The wiper shall be protected from sediment accumulation by a wiper guard (aka parking garage). The wiper shall be field-serviceable and replaceable.
8) The instrument shall be supplied with a user-friendly software program providing communication and data processing. Data shall be presented in both report and graphical form. The software program shall be capable of exporting data in Excel formats.

9) The instrument shall be capable of updating its internal and sensor software with newer versions in the field.
10) The instrument shall provide electrical overload protection to the individual sensors that will prevent data loss in the event that a single sensor experiences catastrophic failure.

Ask a Question

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Get the EXO Brochure

EXO2 3D Interactive Model

EXO2 Sonde

Multiparameter 6-port water quality sonde with anti-fouling wiper

The EXO advanced water quality monitoring platform includes the versatile multiparameter EXO2 sonde for oceanographic, estuarine, or surface water applications.

Key Benefits

- High-accuracy sensors with on-board memory
- Wireless communications
- Seamless integration into marine, estuarine, freshwater and ground water monitoring systems

Smart Sondes and Sensors
Extremely versatile instrument, allowing the user to automatically configure a sondewith different sensor for different applications in minutes

Request a price quote for the EXO2 sonde with the sensors of your choice

Accuracy
Tested in a variety of rigorous field conditions as well as lab conditions to ensure accuracy and response times

Monitor without Interruption
No matter which EXO sensors users select, other features of the sensors' design make them rugged and durable.

- Wet-mateable connectors resist corrosion
- Isolated components prevent short circuits
- Welded housings and double o-rings prevent leaks
- High-impact plastic and titanium resists breaking
- Built-in antifouling systems protect data integrity
- Low power consumption extends underwater deployments

EXO2 Specifications	
Diameter	7.62 cm (3.00 in)
Length	71.10 cm (28.00 in)
Peripheral Ports	1 power communication port; 1 auxiliary port for third-party sensors (future functionality; not active yet)
Sensor Ports	7 (6 ports available when central wiper used)
Warranty, 1 Year	Optical DO membranes and replaceable reagent modules for pH and pH/ORP
Warranty, 2 Years	Cables; sonde bulkheads; handheld; conductivity, temperature, depth, and optical sensors; electronics base for pH, pH/ORP, ammonium, chloride, and nitrate sensors; and accessories
Warranty, 3 months	Replaceable reagent modules for ammonium, chloride, and nitrate
Weight	3.60 kg (7.90 lbs)
General Sonde Specifications	
Battery Life	90 days**
Communications	Computer Interface: Bluetooth wireless technology (between sonde and handheld or computer with KOR software), USB Output Options: USB with signal output adapter (SOA); RS-232 & SDI-12 with DCP-SOA.
Data Memory	512 MB total memory; >1,000,000 Logged readings
Depth Rating	0 to 250 m (0 to 820 ft)
Sample Rate	Up to 4 Hz
Temperature - Operating	-5 to +50°C
Temperature - Storage	-20 to +80°C

**Typically 90 days at 20°C at 15-minute logging interval; temperature/conductivity, pH/ORP, DO, and turbidity sensors installed on EXO1; or temperature/conductivity, pH/ORP, DO, total algae, and turbidity sensors installed with central wiper that rotates once per logging interval on EXO2. Battery life is heavily dependent on sensor configuration.

Specifications indicate typical performance and are subject to change

6-Port Multiparameter Water Quality Sonde with Anti-fouling Wiper

Instrument Only. Cables, probes/sensors, and accessories sold separately.

Overview

Specifications

Anti Fouling:	Central Wiper
Depth / Pressure Rating / Limit:	0 to 250 m (0 to 820 ft)
Desktop Software Compatible:	Yes
Flow Cell:	Yes
Languages:	English, Japanese, Chinese, German, Spanish, French
Logging Capabilities:	Yes
Medium:	Fresh, sea or polluted water
Memory:	>1,000,000 logged readings, 512 MB total memory
Monitoring:	Yes
Multiparameter:	Yes
Operating Temperature:	-5 to +50°C
Power:	4 Alkaline Batteries
Sampling:	Yes
Smart Sensors / Ports:	Yes
Storage Temperature:	-20 to +80°C
Unit of Measure:	Parameter Dependent
User Calibratable:	Yes
Waterproof:	Yes

EXO2 Specifications	
Battery Life	90 days*
Communications	**Computer Interface:** Bluetooth wireless technology (between sonde and handheld or computer with KOR software), USB **Output Options:** USB with signal output adapter (SOA); RS-232 & SDI-12 with DCP-SOA.

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EXO2 Specifications	
Diameter	7.62 cm (3.00 in)
Length	71.10 cm (28.00 in)
Peripheral Ports	1 power communication port; 1 auxiliary port for third-party sensors (future functionality; not active yet)
Sample Rate	Up to 4 Hz
Sensor Ports	7 (6 ports available when central wiper used)
Warranty: 3 mos	Replaceable reagent modules for ammonium, chloride, and nitrate
Warranty: 1 yr	Optical DO membranes and replaceable reagent modules for pH and pH/ORP
Warranty: 2 yrs	Cables; sonde bulkheads; handheld; conductivity, temperature, depth, and optical sensors; electronics base for pH, pH/ORP, ammonium, chloride, and nitrate sensors; and accessories
Weight	3.60 kg (7.90 lbs)

*Typically 90 days at 20˚C at 15-minute logging interval; temperature/conductivity, pH/ORP, DO, total algae, and turbidity sensors installed with central wiper that rotates once per logging interval on EXO2. Battery life is heavily dependent on sensor configuration.

EXO Parameter Measured	Sensor**	Range	Accuracy	Response	Resolution
Ammonium *(freshwater only)*	Ammonium Sensor *Ammonia with pH sensor* SKU: 599710 (/Product/id-599710/EXO-Ammonium-Smart-Sensor)	0 to 200 mg/L (0 to 30˚C)	±10% of reading or 2 mg/L-N, w.i.g.	T63<30 sec	0.01 mg/L
Barometric Pressure	Integral Barometer	375 to 825 mmHg	±1.5 mmHg from 0 to 50°C	-	0.1 mmHg

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EXO Parameter Measured	Sensor**	Range	Accuracy	Response	Resolution
Blue-green Algae, Phycocyanin	Total Algae Sensor SKU: 599102-01 (/Product/id-599102-01/EXO-Total-Algae-PC-Smart-Sensor)	0 to 100 µg/L; 0 to 100 RFU;	**Linearity:** R^2 >0.999 for serial dilution of Rhodamine WT solution from 0 to 100 µg/mL BGA-PC equivalents	T63<2 sec	0.01 µg/L; 0.01 RFU
Blue-green Algae, Phycoerythrin	Total Algae Sensor SKU: 599103-01 (/Product/id-599103-01/EXO-Total-Algae-PE-Smart-Sensor)	0 to 280 µg/L; 0 to 100 RFU;	**Linearity:** R^2 >0.999 for serial dilution of Rhodamine WT solution from 0 to 280 µg/mL BGA-PE equivalents	T63<2 sec	0.01 µg/L; 0.01 RFU
Chloride *(freshwater only)*	Chloride Sensor SKU: 599711 (/Product/id-599711/EXO-Chloride-Smart-Sensor)	0 to 18000 mg/L-Cl (0 to 30°C)	±15% of reading or 5 mg/L-Cl, w.i.g.	T63<30 sec	0.01 mg/L
Chlorophyll	Total Algae Sensor SKU: 599102-01 (/Product/id-599102-01/EXO-Total-Algae-PC-Smart-Sensor), 599103-01 (/Product/id-599103-01/EXO-Total-Algae-PE-Smart-Sensor)	0 to 400 µg/L Chl; 0 to 100 RFU	**Linearity:** R^2 >0.999 for serial dilution of Rhodamine WT solution from 0 to 400 µg/L Chl *a* equivalents	T63<2 sec	0.01 µg/L Chl; 0.01 RFU

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EXO Parameter Measured	Sensor**	Range	Accuracy	Response	Resolution
Conductivity[1]	Conductivity / Temperature Sensor SKU: 599870 (https://www.ysi.com/Product/id-599870/EXO-Conductivity--Temperature-Smart-Sensor)	0 to 200 mS/cm	**0 to 100:** ±0.5% of reading or 0.001 mS/cm, w.i.g.; **100 to 200:** ±1% of reading	T63<2 sec	0.0001 to 0.01 mS/cm (range dependent)
Depth - 10 m	Integral, Non-vented Depth Sensor[3]	0 to 10 m (0 to 33 ft)	±0.04% FS (±0.004 m or ±0.013 ft)	T63<2 sec	0.001 m (0.001 ft) (auto-ranging)
Depth - 100 m	Integral, Non-vented Depth Sensor[3]	0 to 100 m (0 to 328 ft)	±0.04% FS (±0.04 m or ±0.13 ft)	T63<2 sec	0.001 m (0.001 ft) (auto-ranging)
Depth - 250 m	Integral, Non-vented Depth Sensor[3]	0 to 250 m (0 to 820 ft)	±0.04% FS (±0.10 m or ±0.33 ft)	T63<2 sec	0.001 m (0.001 ft) (auto-ranging)
Dissolved Oxygen, % air saturation	Optical Dissolved Oxygen Sensor SKU: 599100-01 (/Product/id-599100-01/EXO-Optical-Dissolved-Oxygen-Smart-Sensor)	0 to 500% air saturation	**0 to 200%:** ±1% of reading or 1% saturation, w.i.g.; **200 to 500%:** ±5% of reading [4]	T63<5 sec[5]	0.1% air saturation
Dissolved Oxygen, mg/L	Optical Dissolved Oxygen Sensor SKU: 599100-01 (/Product/id-599100-01/EXO-Optical-Dissolved-Oxygen-Smart-Sensor)	0 to 50 mg/L	**0 to 20 mg/L:** ±0.1 mg/L or 1% of reading, w.i.g.; **20 to 50 mg/L:** ±5% of reading [4]	T63<5 sec[5]	0.01 mg/L

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EXO Parameter Measured	Sensor**	Range	Accuracy	Response	Resolution
fDOM *(CDOM)*	fDOM Sensor SKU: 599104-01 (/Product/id-599104-01/EXO-fDOM-Smart-Sensor)	0 to 300 ppb Quinine Sulfate equivalents (QSU)	**Linearity:** R2 > 0.999 for serial dilution of 300 ppb QS solution **Detection Limit:** 0.07 ppb QSU	T63<2 sec	0.01 ppb QSU
Level, Vented - 10 m	Integral Vented Level Sensor	0 to 10 m (0 to 33 ft)	±0.03% FS (±0.003 m or ±0.010 ft)	T63<2 sec	0.001 m (0.001 ft)
Nitrate *(freshwater only)*	Nitrate Sensor SKU: 599709 (/Product/id-599709/EXO-Nitrate-Smart-Sensor)	0 to 200 mg/L-N (0 to 30°C)	±10% of reading or 2 mg/L-N, w.i.g.	T63<30 sec	0.01 mg/L
pH	pH Sensor SKU:599701 guarded (/Product/id-599701/EXO-pH-Smart-Sensor), 599702 unguarded (/Product/id-599702/EXO-pH-Smart-Sensor) pH/ORP Sensor SKU:599705 guarded (/Product/id-599705/EXO-pH--ORP-Smart-Sensor), 599706 unguarded (https://www.ysi.com/Product/id-599706/EXO-pH--ORP-Smart-Sensor)	0 to 14 units	±0.1 pH units within ±10°C of calibration temp; ±0.2 pH units for entire temp range[7]	T63<3 sec[8]	0.01 units
ORP	pH/ORP Sensor SKU:599705 guarded (/Product/id-599705/EXO-pH--ORP-Smart-Sensor), 599706 unguarded (https://www.ysi.com/Product/id-599706/EXO-pH--ORP-Smart-Sensor)	-999 to 999 mV	±20 mV in Redox standard solution	T63<5 sec[6]	0.1 mV

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EXO Parameter Measured	Sensor**	Range	Accuracy	Response	Resolution
Temperature	Conductivity / Temperature Sensor SKU: 599870 (/Product/id-599870/EXO-Conductivity--Temperature-Smart-Sensor)	-5 to 35°C 35 to 50°C	±0.01°C[2] ±0.05°C[2]	T63<1 sec	0.001 °C
Turbidity[9]	Turbidity Sensor SKU: 599101-01 (/Product/id-599101-01/EXO-Turbidity-Smart-Sensor)	0 to 4000 FNU	**0 to 999 FNU:** 0.3 FNU or ±2% of reading, w.i.g.; **1000 to 4000 FNU:** ±5% of reading[10]	T63<2 sec	0 to 999 FNU = 0.01 FNU; 1000 to 4000 FNU = 0.1 FNU
Salinity	Calculated from Conductivity and Temperature[11]	0 to 70 ppt	±1.0% of reading or 0.1 ppt, w.i.g.	T63<2 sec	0.01 ppt
Specific Conductance	Calculated from Conductivity and Temperature[11]	0 to 200 mS/cm	±0.5% of reading or .001 mS/cm, w.i.g.	-	0.001, 0.01, 0.1 mS/cm (auto-scaling)
Total Dissolved Solids (TDS)	Calculated from Conductivity and Temperature[11]	0 to 100,000 mg/L Cal constant range 0.30 to 1.00 (0.64 default)	Not Specified	-	Variable
Total Suspended Solids (TSS)	Calculated from Turbidity and user reference samples	0 to 1500 mg/L	Not specified	T63<2 sec	Variable

**Specifications indicate typical performance and are subject to change. All sensors have a depth rating to 250 m (820 ft), except shallow and medium depth sensors, ammonium, chloride, and nitrate. Accuracy specification is attained immediately following calibration

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under controlled and stable environmental conditions. Performance in the natural environment may vary from quoted specification.
w.i.g. = whichever is greater

EXO sensors are not compatible with YSI 6-Series sondes, sensors, or handheld.

[1]Outputs of specific conductance (conductivity corrected to 25˚C) and total dissolved solids are also provided. See Calculated Parameters and footnote 11.
[2] Temperature accuracy traceable to NIST standards
[3]Accuracy specifications apply to conductivity levels of 0 to 100,000 µS/cm.
[4] Relative to calibration gases
[5] When transferred from air-saturated water to stirred deaerated water
[6] When transferred from water-saturated air to Zobell solution
[7]Within the environmental pH range of pH 4 to pH 10.
[8]On transfer from water-saturated air to rapidly stirred air-saturated water at a specific conductance of 800 µS/cm at 20˚C; T63<5 seconds on transfer from water-saturated air to slowly-stirred air-saturated water.
[9] Calibration: 1-, 2-, or 3-point, user-selectable
[10] Performance based on 3-point calibration done with YSI AMCO-AEPA standards of 0, 124, and 1010 FNU. The same type of standard must be used for all calibration points.
[11] Values are automatically calculated from conductivity according to algorithms found in *Standard Methods for the Examination of Water and Wastewater* (Ed. 1989).

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EXO Bluetooth modules comply with Part 15C of FCC Rules and have FCC, CE Mark and C-tick approval. Bluetooth-type approvals and regulations can be country specific. Check local laws and regulations to insure that the use of wireless products purchased from Xylem are in full compliance.

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EXO2 Multiparameter Sonde

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(/ProductImages//d71cb719-01f8-45fb-9296-2c4f47881e01/images/EXO_Wiped_CT_Sonde.jpg)

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Price: **Request Pricing**

Option: EXO2 Sonde, No Depth, 7 Sensor Ports

SKU: 599502-00

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