



EXO - Advanced Water Quality Monitoring Platform



Breaking
the sonde
barrier

Impresso resumido baseado no folder
EXO - Advanced Water Quality Monitoring Platform da YSI / a xylem brand



**EXO represents the intersection of
the Environment and Observation
and a new generation of
monitoring technology**

Go Wireless

Set up, calibrate, and deploy your instrument without a single cable. No more trips to the field and discovering you don't have the right cables. The wireless handheld and sonde are the perfect pair.

Reduce Biofouling

There's no escaping biofouling in underwater measurements. To keep it from interfering with data, EXO uses copper-alloy parts and anti-fouling wipers to prolong deployments and improve data accuracy.

Smart Probes. Smart Ports.

Never worry a bad probe will compromise your data. Active port monitoring automatically detects sensors and, if damage to a sensor occurs, can shut down that port to prevent damage to the sonde or other sensors.

Smart Sonde

Onboard monitoring systems automatically scan for configuration errors, monitor memory status, and verify sensor operation. Numerous onboard tests ensure successful deployments.

Smart Probes

All EXO sensors have onboard memory and processing, allowing users to easily calibrate and configure sensors at one location and distribute to various field sites.

Self-Routing Sensors

Automatic routing enables a string of sondes to pass messages to individual probes. Anytime the configuration changes, the system automatically recognizes it. A "kick" allows any device to send alerts back up the chain.

Enhance Data Collection with these EXO Components

EXO Handheld

The EXO handheld provides an extremely durable, portable, weather-proof interface to the EXO sondes. The handheld uses a mobile version of the KOR interface software.

Additional standard features:

- GPS
- Temperature-compensated barometer
- Backlit alphanumeric keypad
- Microphone/speaker
- Wet-mate wireless connector
- Bluetooth communication
- Color LED screen
- 2 GB of storage
- Rechargeable battery capable



Interface with the EXO Sonde using the EXO Handheld Display

KOR Interface Software

The KOR Software offers users the capability to easily manage, visualize, and organize large amounts of field data. KOR also provides an interface to the EXO products for fast calibration, configuration, QA/QC or data collection.

- New calibration processes for long-term monitoring
- Graphical user interface for quick data analysis
- Multiple languages

Multiple Data Output Options

Sonde output is readable by YSI handheld instruments, interface software, and data telemetry modules. In addition to the cable (standard), these communication interfaces are also available:

DCP Signal Output Adapter

Wires into the end of the YSI field cable via flying leads and converts signal to RS-232 or SDI-12 for datalogger applications.

USB Adapter

Allows connections between an EXO sonde and a PC.

Bluetooth Wireless Technology

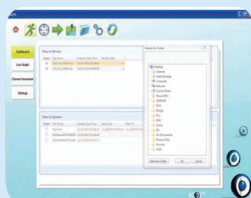
Enables communication between a sonde and a user in the lab and pre-deployment in the field.



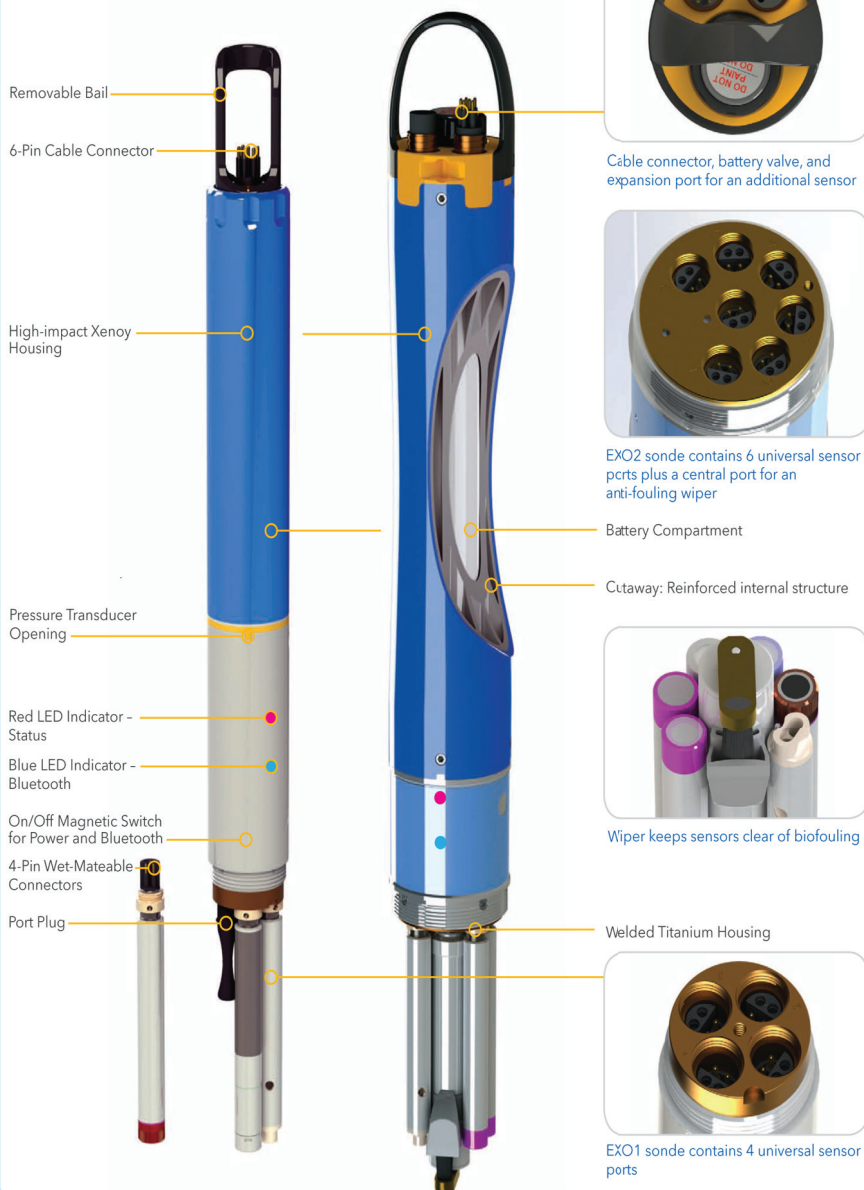
DCP Signal Output Adapter



USB Adapter



Sondes: EXO1 EXO2



Instrument Specifications*

| | | |
|---|--|-------------------------|
| EXO1 Sonde | | |
| Ports | 4 sensor ports Peripheral port: 1 power communication port | |
| Size | Diameter: 4.70 cm (1.85 in) Length: 64.77 cm (25.50 in) | |
| Weight | 1.42 kg (3.15 lbs) with 4 probes, guard and batteries installed | |
| EXO2 Sonde | | |
| Ports | 7 sensor ports (6 ports available when central wiper used) Peripheral ports: 1 power communication port; 1 auxiliary expansion port | |
| Size | Diameter: 7.62 cm (3.00 in) Length: 71.10 cm (28.00 in) | |
| Weight | 3.60 kg (7.90 lbs) with 5 probes, guard and batteries installed | |
| Sondes | | |
| Operating Temperature | -5 to 50°C | |
| Storage Temperature | -20 to 80°C (except 0 to 60°C for pH and pH/ORP sensors) | |
| Depth Rating | 0 to 250 m (0 to 820 ft) | |
| Communications | Computer Interface: Bluetooth wireless technology, RS-485, USB Output Options: USB with signal output adapter (SOA); RS-232 & SDI-12 with DCP-SOA | |
| Sample Rate | Up to 4 Hz | |
| Battery Life | 90 days** | |
| Data Memory | 512 MB total memory; >1,000,000 logged readings | |
| Sensors | | Calculated Parameters |
| Ammonium** | ORP | Salinity |
| Chloride** | pH | Specific Conductance |
| Conductivity | Temperature | Total Dissolved Solids |
| Depth | Total Algae (Chlorophyll + BGA-PC or PE**) | Total Suspended Solids |
| Dissolved Oxygen | Turbidity | |
| Fluorescent Dissolved Organic Matter (fDOM) | Vented Level** | |
| Nitrate** | | |
| EXO Handheld | | |
| Size | Width: 12.00 cm (4.72 in) Height: 25.00 cm (9.84 in) | |
| Weight | 0.71 kg (1.56 lbs) without batteries | |
| Operating System | Windows CE 5.0 | |
| Operating Temperature | -10 to 50°C | |
| Storage Temperature | -20 to 80°C | |
| IP Rating | IP-67 | |
| Data Memory | 2 GB total memory; >2,000,000 data sets | |
| Accessories | | |
| Cables (non-vented) | Flow cells | Sonde/sensor guard |
| Carrying case | KOR software | Calibration cup |
| DCP Signal Output Adapter | USB Signal Output Adapter | Anti-fouling components |
| Warranty | | |
| 1 Year | pH, ORP, and optical DO membranes | |
| 2 Years | Cables, sondes (bulkheads), handheld, and the following sensors: conductivity, temperature, depth, and optical sensors | |

* Specifications indicate typical performance and are subject to change. Please check EXOwater.com for up-to-date information.

** 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.

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.

** Release in 2013. BGA-PE specs TBD.

Sensor Specifications*

| Sensor | Range | Accuracy* | Response | Resolution |
|---|--|---|------------------------|---|
| Ammonium** ¹¹ (ammonia with pH sensor) | 0 to 200 mg/L ¹ | ±10% of reading or 2 mg/L-N, w.i.g. | - | 0.01 mg/L |
| Barometer | 375 to 825 mmHg | ±1.5 mmHg from 0 to 50°C | - | 0.1 mmHg |
| Blue-green Algae Phycocyanin (PC) or Phycoerythrin (PE)** (part of Total Algae sensor) | 0 to 100 µg/L PC; 0 to 100 RFU | Linearity: R ² > 0.999 for serial dilution of Rhodamine WT solution from 0 to 100 µg/mL PC equivalents Detection Limit: 0.04 µg/L PC | T63<2 sec | 0.01 µg/L PC; 0.01 RFU |
| Chloride** ¹¹ | 0 to 1000 mg/L ² | ±15% of reading or 5 mg/L, w.i.g. | - | 0.01 mg/L |
| Chlorophyll (part of Total Algae 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 equivalents Detection Limit: 0.09 µg/L Chl | T63<2 sec | 0.01 µg/L Chl; 0.01 RFU |
| Conductivity ³ | 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 ⁴ (non-vented) | 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) |
| | 0 to 100 m (0 to 328 ft) | ±0.04% FS (±0.04 m or ±0.13 ft) | | |
| | 0 to 250 m (0 to 820 ft) | ±0.04% FS (±0.10 m or ±0.33 ft) | | |
| Vented Level** | 0 to 10 m (0 to 33 ft) | ±0.03% FS (±0.003 m or ±0.010 ft) | | |
| Dissolved Oxygen Optical | 0 to 500% air saturation | 0 to 200%: ±1% of reading or 1% saturation, w.i.g.; 200 to 500%: ±5% of reading ⁵ | T63<5 sec ⁶ | 0.1% air saturation |
| | 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 ⁵ | | 0.01 mg/L |
| fDOM | 0 to 300 ppb Quinine Sulfate equivalents (QSE) | Linearity: R ² > 0.999 for serial dilution of 300 ppb QS solution Detection Limit: 0.07 ppb QSE | T63<2 sec | 0.01 ppb QSE |
| Nitrate** ¹¹ | 0 to 200 mg/L-N ¹ | ±10% of reading or 2 mg/L-N, w.i.g. | - | 0.01 mg/L |
| ORP | -999 to 999 mV | ±20 mV in Redox standard solutions | T63<5 sec ⁷ | 0.1 mV |
| pH | 0 to 14 units | ±0.1 pH units within ±10°C of calibra- tion temp; ±0.2 pH units for entire temp range ⁸ | T63<3 sec ⁹ | 0.01 units |
| Salinity (Calculated from Conductivity and Temperature) | 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) | 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) |
| Temperature | -5 to 50°C | -5 to 35°C: ±0.01°C ¹⁰ 35 to 50°C: ±0.05°C ¹⁰ | T63<1 sec | 0.001 °C |
| Total Dissolved Solids (TDS) (Calculated from Conductivity and Temperature) | 0 to 100,000 g/L Cal constant range 0.30 to 1.00 (0.64 default) | Not Specified | - | variable |
| Total Suspended Solids (TSS) (Calculated from Turbidity and TDS) | 0 to 1500 mg/L | Not Specified | T63<2 sec | variable |
| Turbidity ¹¹ | 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 ¹² | T63<2 sec | 0 to 999 FNU: 0.01 FNU; 1000 to 4000 FNU: 0.1 FNU |

All sensors have a depth rating to 250 m (820 ft), except shallow and medium depth sensors and ISEs. EXO sensors are not backward compatible with 6-Series sondes.

* Specifications indicate typical performance and are subject to change. Please check EXOwater.com for up-to-date information.
Accuracy specification is attained immediately following calibration under controlled and stable environmental conditions. Performance in the natural environment may vary from quoted specification.

¹ 0-30°C ² 0-40°C w.i.g. = whichever is greater

³ Outputs of specific conductance (conductivity corrected to 25°C) and total dissolved solids are also provided. The values are automatically calculated from conductivity according to algorithms found in *Standard Methods for the Examination of Water and Wastewater* (Ed. 1989).

⁴ Accuracy specifications apply to conductivity levels of 0 to 100,000 µS/cm.

⁵ Relative to calibration gases

⁶ When transferred from air-saturated water to stirred deaerated water

⁷ When transferred from water-saturated air to Zobell solution

⁸ Within the environmental pH range of pH 4 to pH 10

⁹ 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.

¹⁰ Temperature accuracy traceable to NIST standards

¹¹ Calibration: 1-, 2-, or 3-point, user-selectable

¹² Specification is defined in AMCO-AEPA Standards

** Release in 2013. BGA-PE specs TBD.



Rua Antonio Lapa, 214 - Campinas, SP Brasil
CEP: 13025-240
Fone: 19.3794.2900 / Hotline 24h 19.3794.2901 / Fax: 19. 3794.2919
www.clean.com.br - clean@clean.com.br

www.clean.com.br