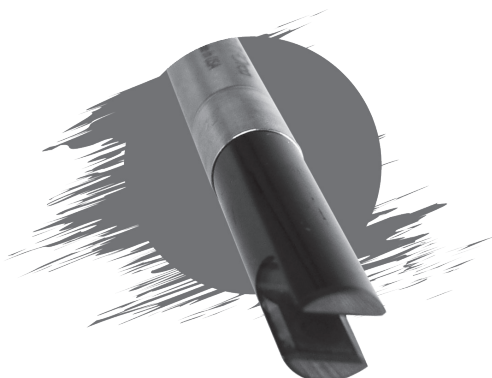




Wiped Conductivity & Temperature Sensor Quick Start Guide



You're on your way to better conductivity measurements.

Thank you for purchasing the 599827 Wiped Conductivity & Temperature sensor for the EXO sonde platform. This document is intended to highlight the key user requirements for successful deployment, operation, and maintenance of your new sensor. This document supplements the EXO user manual which should be reviewed as a comprehensive guide on the EXO platform.

Sensor Specifications:

CONDUCTIVITY
Range: 0-100,000 $\mu\text{S}/\text{cm}$
Initial Accuracy: $\pm 1\%$ of reading or 2 $\mu\text{S}/\text{cm}$ w.i.g.
SPECIFIC CONDUCTANCE
Range: 0-100,000 $\mu\text{S}/\text{cm}$
Accuracy: 1% of reading or $\mu\text{S}/\text{cm}$ w.i.g.
TEMPERATURE
Range: -5 - 50°C
Accuracy: $\pm 0.2^\circ\text{C}$
Response Time: T95<30sec

w.i.g. = whichever is greater

Unboxing:

Your new 599827 Wiped C/T sensor includes the following items:

- 599827 – Wiped Conductivity and Temperature sensor
- 599673 – Central wiper brush kit
- 599831 – Spacing kit, including 12 zip ties, 12 wiper o-rings

If any item is missing, please contact info@ysi.com for replacements.

Software Installation:

Navigate to <http://www.exowater.com/manuals-software.php> to obtain the latest desktop and handheld software. The new software is necessary to properly calibrate and identify the new sensor model. Note the sonde firmware, SOA adaptor, and sensor firmware **DO NOT** need to be updated for the new Wiped Conductivity & Temperature sensor to function properly.

Below are the software versions compatible with your new sensor:

- Legacy desktop KOR software, version 1.0.12 (available Sept. 2015)
- New upgraded “KorEXO” software, version 2.0.0 (future release pending)
- Handheld software version 1.5.0.38 or newer (available Sept. 2015)

The version numbers are viewable in both KOR and Handheld by navigating to the far right, Help Icon:



Calibration:

A wet calibration of your new conductivity sensor should be completed before initial use. It is recommended you complete a single point calibration in a standard similar to the conductivity readings that you expect to measure. It is recommended not to use standards below 1,000 $\mu\text{S}/\text{cm}$ for fresh water applications as they can become easily contaminated.

The temperature sensor cannot be user calibrated. Best practice is to periodically test the performance of the temperature sensor against a NIST traceable thermometer at several reference points.

NOTE: All EXO sensors should be user calibrated before initial use.

Deployment Setup:

The Wiped Conductivity & Temperature sensor is optimized for continuous monitoring where a variety of environmental fouling conditions can affect the performance of the sensor over time. Numerous solutions can be employed to mitigate the effects of bio-fouling. These can include the use of copper tape, anti-fouling guards, anti-fouling paints, as well as local techniques developed for site specific challenges. An effective long term monitoring program may employ a combination of techniques to limit bio-fouling to extend deployment times and subsequently reduce maintenance efforts. Using the central wiper to groom the conductivity cell before readings strives to reduce biofouling induced drift on the conductivity cell.

- If two conductivity sensors are installed in a single sonde, the temperature from the sensor with the lower port will be used for temperature compensation of other parameters.

Deployment Setup Continued

Your new sensor includes a new wiper central wiper brush (599673). A brush's wear and replacement intervals vary greatly based on specific application challenges, but 2-12 months use has been observed. Below are three examples of brush wear that will occur naturally over use. It is recommended the wiper brush be replaced before it reaches level 3 for optimal cleaning. We recommend using a new wiper brush with the initial deployment.



Level 1- New brush, minimal "splay"



Level 2- Moderate splaying, have spare ready

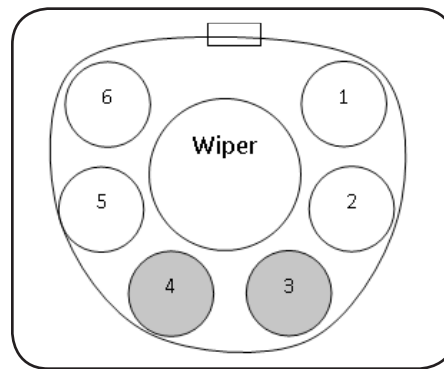


Level 3- Excessive splay, replace to prevent stalling of wiper

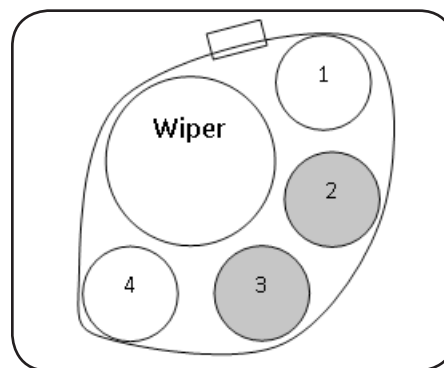
NOTE: It is not recommended using wiped C/T in conjunction with EXO Ammonium, Nitrate, or Chloride electrodes as they are protected with a guard which accelerates the brush splay.

Sensor Installation:

EXO sensors can be installed in any port, however for optimal cleaning avoid installing the Wiped Conductivity & Temperature sensor as the first or last sensor in a group. Having the sensor installed towards the middle of an array is optimal. Below are some examples:



Optimal Wiped C/T positions: 3 or 4



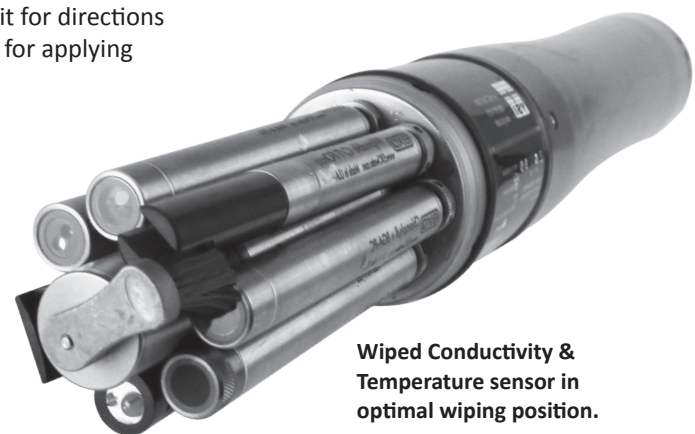
Optimal Wiped C/T positions: 2 or 3

- Your new sensor includes a kit 599831 containing probe alignment o-rings and disposable zip ties. These items are to be used to optimally align the wiped conductivity probe cell with the brush. Refer to the 599832 instruction sheet included in the kit for directions and recommendations for applying the spacers.

EXO Wiped C/T Considerations:

Here are some important considerations for successful use of the 599827 Wiped Conductivity & Temperature sensor:

- Sensor performance and specifications are well suited for continuous monitoring applications, where the EXO sonde is installed at a fixed location. For sampling and vertical profiling applications the legacy 599870 Conductivity Temperature probe which has a much faster temperature response should be used.
- Your new wiped C/T will have a different cell constant than the legacy Conductivity probes. A nominal cell constant of 0.469 ± 0.05 is typical on wiped conductivity.
- The EXO2 central wiper 599090 must have the wiper shaft seal serviced in the past 2 years prior to use with your new wiped C/T probe. The wiper will work harder grooming the new sensor, therefore if your wiper hasn't had the shaft seal properly maintained there is a chance it could stall mid deployment. As a matter of preventative maintenance, the EXO central wiper seals should be replaced and lubricated at an authorized service center once every 2 years regardless of your monitoring application.



Wiped Conductivity & Temperature sensor in optimal wiping position.