ProDSS Quick Start Guide

This Quick Start Guide is a quick reference in operating the ProDSS. It is not intended to replace the information found in the User Manual. For your convenience, this Quick Start Guide will enable you to unpack your instrument and get to the field quickly. An electronic version of the User Manual is located on the USB flash drive included with the instrument. Please refer to the ProDSS Battery Pack Quick Start Guide, also located on the USB flash drive, for battery safety warnings and precautions.

Powering on the ProDSS

The ProDSS comes with a lithium-ion battery pre-installed. The battery ships at ~50% full capacity and there is no need to charge the instrument before first use. To power on the instrument, simply press the green power key. To power off, press and hold the power key for 1.5 seconds.

Menu Functions

The ProDSS has a menu-based interface. Press the "hot keys" to access the System 🔘, Probe 🔘, Calibration 🔘, and File 🔘 menus (from left to right at the top of the keypad). To navigate through the menus, use the up ▲ and down ▼ arrow keys to highlight a desired menu option with the highlight bar, and press the Enter 🔘 key to activate the selection. Use the left arrow ◄ key to go back one screen. Press the Esc 🔘 key to return to the run screen or to exit an alpha/numeric entry screen. The Run screen will appear when powering on the instrument.

Setting the Date and Time

1. Press the System 🔘 key.
2. Highlight **Date/Time** and press the Enter key.
3. Highlight **Date Format** and press the Enter key. Select the desired time format, press the Enter key, and press the left arrow ◄ key.
4. Highlight **Date** and press the Enter key. Use the keypad to enter the correct date, highlight **ENTER** on the display, and press the Enter key.
5. Highlight **Time Format** and press the Enter key. Highlight the correct format, press the Enter key, and press the left arrow ◄ key.
6. Highlight **Time** and press the Enter key. Use the keypad to enter the correct time, highlight **ENTER** on the display, and press the Enter key
7. Press Esc 🔘 to return to the Run screen.

Installing Sensors and Connecting Cable

Install sensors by referencing the ProDSS Sensor Installation sheet included with each new sensor.
1. Inspect the sensor port for contamination. If dirty or wet, clean with compressed air.
2. Apply a <u>thin</u> layer of Krytox® o-ring lubricant to the sensor o-rings.
3. Align the connectors and push the sensor in towards the bulkhead until you feel the sensor firmly seat in its port. The bulkhead ports are not sensor-specific, allowing for installation of any ProDSS sensor into any open sensor port.
4. Once seated, finger-tighten the titanium sensor nut by hand. DO NOT continue to tighten if cross threading is suspected.
5. Tighten with the sensor installation/removal tool until snug. Approximately ¼ to ½ turn may be needed. DO NOT over tighten.
6. Install a port plug in any unused sensor port.

7. Align the keys on the cable connector with the slots on the instrument connector. Push together and twist to lock into place.

Installing Sensor Guard and Calibration Cup

Install the calibration cup when storing or calibrating sensors. ProDSS weight(s) should not be installed on the sensor guard when the calibration cup is used.

1. Place the sensor guard over the sensors and attach to the bulkhead.
2. Ensure the calibration cup gasket is correctly seated in the plastic retaining nut.
3. Loosely install the retaining nut on the calibration cup and slide the cup over the sensor guard.
4. Tighten the retaining nut to clamp/seal the cup onto the guard.

Sensor Setup

ProDSS sensors are automatically recognized by the instrument, eliminating the need to enable each sensor under the Sensor Setup menu. However, some sensor specific settings (e.g. pH automatic buffer recognition mode) can be set in the Sensor Setup menu, found by pressing the Probe 🔵 key.

Setting Displayed Measurement Units

Measurement units that appear on the Run screen for each sensor can be selected under the Sensor Display menu. The units chosen to be displayed will also appear on the data logging file. To set displayed measurement units:

1. Press the Probe 🔵 key.
2. Highlight **Display** and press the Enter key.
3. Highlight the sensor of interest and press the Enter key.
4. Select the units you would like to display on the Run screen by using the Enter key. Check boxes indicate that more than one measurement unit can be displayed for the sensor (e.g. Nitrate can be displayed as NO_3-N mg/L and NO_3 mV). Circles indicate that only one measurement unit can be displayed for the sensor (e.g. temperature can't be displayed as °C and °F).
5. Press the left ◄ arrow key to return to the previous screen or press Esc to return to the Run screen.

Barometer Calibration

The barometer has been calibrated before shipment. We suggest you check the barometer by following step one below. If the instrument displays the correct reading, no further action is required. If incorrect, please continue with step two below.

1. Determine your local barometric pressure (BP) in mmHg from a mercury barometer, an independent laboratory, or from a local weather service. If the BP reading has been corrected to sea level, use the following equation to determine the true BP in mmHg for your altitude:

   True BP = (Corrected BP in mmHg) – {2.5 * (Local Altitude in feet/100)}

2. Press the Cal 🔵 key.
3. Highlight **Barometer** and press the Enter key.
4. Highlight **Calibration Value** and press the Enter key to adjust.
5. Use the Alpha/Numeric screen to enter True BP, then highlight **ENTER** and press the Enter key.
6. Highlight **Accept Calibration** and press the Enter key to finish the calibration.

Depth Calibration

When calibrating the depth sensor, ensure that the sensor is clean and in <u>air</u>. Keep the bulkhead still while calibrating.

1. Press the Cal 🔵 key, highlight **Depth,** and press the Enter key.
2. Allow the readings to stabilize by observing the graph on the measurement screen.

3. Once stable, highlight **Accept Calibration** and press the Enter key to calibrate.

Optical Dissolved Oxygen (ODO) Calibration

The ProDSS offers three options for calibrating dissolved oxygen. The first is an air calibration method in DO % saturation. The second, calibration in mg/L, can be completed using a solution with a known DO concentration (usually determined by a Winkler Titration). Calibration in either DO % or mg/L will automatically calibrate the other. The third option is a zero calibration, commonly completed in a sodium sulfite solution. You must perform a DO % calibration following a zero calibration. For ease of use and accuracy, YSI recommends performing the following 1-point DO % calibration:

1. With a clean sensor guard attached, place a small amount of water (1/8 inch) in the calibration cup and slide the calibration cup over the sensor guard. Tighten the calibration cup retaining nut, but disengage a thread or two to ensure atmospheric venting. **Make sure the DO and temperature sensors are <u>not</u> immersed in the water and there are no water droplets on the sensors.**
2. Wait approximately 5 to 10 minutes for the calibration cup to become saturated.
3. Press the Cal **Cal** key, highlight **ODO**, and press the Enter key.
4. Highlight **DO %**, then press the Enter key.
5. Verify the barometric pressure displayed is accurate. Once DO % and temperature are stable, highlight **Accept Calibration** and press the Enter key.

pH, ORP, ISE, Conductivity, and Turbidity Calibration

Please consult the ProDSS User Manual for additional calibration procedure details.

1. Ensure the equipment used for calibration is clean and rinsed.
   Note: The sensor guard and calibration cup are required for turbidity. Other containers (e.g. beaker) can be used for pH, ORP, ISE, and conductivity calibrations as long as care is used to protect the sensors from damage.
2. Fill the calibration container with enough fresh standard to cover the temperature sensor and the sensing end of the sensor to be calibrated. Completely submerge the top vent hole when calibrating the conductivity sensor. If using the calibration cup, fill to the first line for pH, ORP, and turbidity calibration. Fill to the second (i.e. top) line for conductivity.
   Note: First calibration point for turbidity must be 0 NTU. Deionized or distilled water can be used.
3. Press the Cal **Cal** key.
4. Highlight the parameter you wish to calibrate and press the Enter key. For Conductivity, a second menu will offer the option of calibrating **Specific Conductance**, **Conductivity**, or **Salinity**. Calibrating one automatically calibrates the other two. Specific conductance is recommended.
5. Allow at least one minute for the temperature to stabilize. Calibration solution values for pH and ORP standards are temperature dependent (e.g. pH 7 buffer calibration solution value is 7.02 at 20 ^{o}C and 7.00 at 25 ^{o}C).
6. Enter the calibration solution value by highlighting **Calibration Value**, pressing the Enter key, and then using the alpha/numeric keypad to enter the known value for the standard. Once you have entered the value of the calibration standard, highlight **ENTER** and press the Enter key.
7. Allow the readings to stabilize by observing the white line on the graph located at the bottom of the calibration screen. Once stable, highlight **Accept Calibration** and press the Enter key to calibrate.
8. For pH, ISEs, and turbidity, continue with the next point by placing the sensor in a second standard solution and following the procedure previously described. To complete the calibration, highlight **Finish Calibration** and press the Enter key. Up to 3 calibration points can be completed for these sensors.

Logging and Viewing Data

The ProDSS features two methods of logging data. Only one data point will be saved at a time when using **Single** point logging, while the instrument will log multiple data points at user-defined intervals with **Continuous** logging. To set the method and log data:

1. Press the System 🔘 key. Use the arrow keys to highlight **Logging** and press the Enter key. For continuous logging, enable **Continuous Mode** and adjust the time interval. To enable **Single** point logging, simply disable **Continuous Mode**.
2. Once the logging method is set, return to the Run screen using the Esc key.
3. To log data, press the Enter key.
4. To stop **Continuous** logging, simply press the Enter key again.

There are two different methods of displaying data on the Run screen. With **Auto Sampling**, the measurements on the Run screen are continuously updated. **Manual Sampling** "locks" the measurements on the display when stability is reached, resulting in the conservation of power and an increase in battery life. These methods can be set by pressing the System key and adjusting the sampling mode.

Data can be "tagged" on the ProDSS using two different descriptors, **Site** and **Data ID**. **Site** contains GPS information connected with a site while **Data ID** is a method of tagging the data (e.g. project number or day of the week). Press the System key to add/modify these options under the logging menu.

When taking measurements, insert the sensor into the sample and briefly move the sensor up and down to release any air bubbles. Continuous sensor movement is not required. Allow measurements to stabilize and press the Enter key to log data. Press the File key to view, delete, or backup logged data or the GLP file. Data can be filtered by date/time and by user-created site and data ID.

Uploading Data to KorDSS

The ProDSS User Manual, located on the USB flash drive provided with the instrument, provides thorough instructions on installing KorDSS and the USB driver for the ProDSS. The HTML help file, located under the File tab of KorDSS, provides a more complete description of KorDSS features.

1. Make sure KorDSS and the USB drivers are installed on the PC (KorDSS and the USB drivers are included on the USB flash drive provided with the ProDSS).
2. Use the USB cable to connect the instrument to the PC. If connecting for the first time, Windows® may prompt you through a Wizard in order to complete the USB driver installation.
3. Open KorDSS on the PC and turn on the ProDSS.
4. Choose the desired instrument in KorDSS under the **Instrument Connection Panel**. Once you've highlighted the correct instrument, click **Connect.**
5. If the settings of KorDSS are set to not automatically download data upon instrument connection, click **Start Download from Device**, also under the **Instrument Connection Panel**.
6. After data download, the data is available for viewing, printing, and exporting from KorDSS.
7. Press the File ⬛ key and choose **Delete Data** if you no longer need the data on the ProDSS.

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