

Quick Start Guide

Low-Flow Sampling with SMARTROLL™ MP Instrument

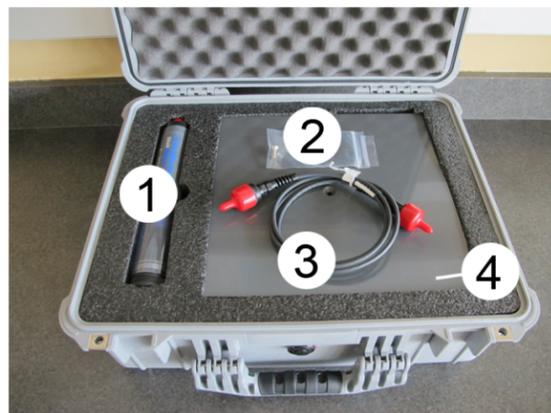
Low-Flow sampling allows you to automate the collection of well and pumping information, monitor and record the stabilization of key water quality parameters, and automatically generate sample reports that conform to federal and regional regulations.

You can set up a template in the office and email it to a technician, or the setup can be done entirely in the field.

You need the following equipment.

- Pump and tubing
- Flow cell, fittings, and base plate or stake
- SMARTROLL MP Instrument, battery pack, and cable
- iPod® or iPhone® loaded with the iSitu App
- Optional turbidity meter

Top Layer



1	SMARTROLL MP Instrument and storage/cal cup
2	Attachment screw for base plate
3	Cable
4	Base plate

Bottom Layer



5	Battery pack
6	Calibration solution
7	Flow cell fittings
8	iPod loaded with the iSitu app
9	Flow cell
10	Stake to anchor flow cell if base plate is not used.

In the Office

You can create a Low-Flow template from a desktop or laptop computer and email it to technicians in the field. If you do not create a template, you can set up the test in the field. You can calibrate the water-quality sensors in the office or in the field.

1. To create a Low-Flow template, install the Low-Flow software on your computer.

✓ Set up an email account on the iPod for template and data transfer. Go to Settings > Mail, Contacts, Calendars > Accounts and enter your email information.

✓ After you return the equipment to the factory, all information will be erased from the iPod, or you can delete the account yourself.

2. Open the software and follow the Wizard to enter your project information.



✓ Detailed information is available in the SMARTROLL MP Instrument manual.

Email Low-Flow Template to an iPod or iPhone

1. Low-Flow templates are by default saved to your computer in **My Documents/LowFlow Templates**.
2. One way to email a template is to open the **LowFlow Templates** folder and right-click on the template you want to email.
3. Select **Send to** and select **Mail recipient**. A new email will open with the template attached.
4. Send the email to a device that has email enabled.

Load the Template into the iSitu App

1. Open the email on the mobile device.
2. Scroll to the attached template.
3. Tap and hold the attachment. A pop-up menu appears.

4. Tap the **iSitu icon** . The iSitu app opens with the template loaded. If you would like to save the template to the device, tap the **Save** button.

✓ You can swipe through the screens and edit information before you save changes to the template.

Connect the Cable to the Instrument and Battery Pack

Align the pins on the cable connector with the pins on the instrument, then twist the outer portion of the connector until the connection is secure.

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Connect the Instrument to the iSitu App

1. Make sure that the cable is connected to the instrument and the battery pack.
2. Press the power button on the battery pack.
3. On the mobile device, tap **Settings**.
4. Turn Bluetooth on.
5. Press the Home button (round button on the mobile device frame) to show all apps.
6. Tap the iSitu icon  to open the iSitu App.
7. If you are prompted to allow iSitu to use your current locations, tap **OK**.

✓ If you allow iSitu to use your current locations it will enable the mapping feature for site setup. If you select **Don't Allow**, you can change the setting later. **See Settings > Privacy Settings > Location Services.**

8. Live readings appear on screen.

Calibrate the Rugged Dissolved Oxygen Sensor

The RDO sensor requires very little maintenance. The zero oxygen calibration is optional.

1. Tap the **Calibration** icon  to access a list of sensors that are available for calibration.
2. Tap **RDO Sensor**.
3. Select the method by which you intend to calibrate the sensor. This example demonstrates a two-point calibration. Tap **100% and 0% Saturation**.
4. Place a water-saturated sponge in the bottom of the calibration cup. Place the instrument into the calibration cup, and tap **Start**.
5. When the calibration is stable, tap the **Accept** button.
6. Remove the sponge and add fresh sodium sulfite solution to the fill line. Place the instrument into the calibration cup, and tap **Start**.
7. When the calibration is stable, tap the **Accept** button.
8. To view the calibration report, tap **View Report**.
9. Rinse the sensors thoroughly with DI water.

Calibrate Multiple Sensors with Quick-Cal Solution

1. Tap the **Calibration** icon  to access a list of sensors that are available for calibration.
2. Tap **Quick-Cal**.
3. The conductivity, pH, and ORP sensors are automatically selected. Tap the green check mark next to a sensor if you want to exclude it from the quick calibration.
4. Tap **OK**.
5. Fill the calibration cup to the fill line with Quick-Cal solution.
6. Place the instrument into the calibration cup, and tap **Start**.
7. When the calibration is stable, tap the **Accept** button.
8. Rinse the sensors with DI water.

Prepare the Flow Cell



1. Select the barbed NPT fitting that will fit with the tubing size.
2. Tape the threads with plumbing tape.
3. Attach a fitting to the inflow port at base of the cylinder and to the outflow port at the top of the cylinder. Tighten until hand-tight. Do not tighten with a wrench.

 The 3-way valve and check valve are optional.

4. Attach the tubing.
5. Use the attachment screw to connect the flow cell to the base plate.
6. Insert the calibrated SMARTROLL™ MP Instrument.

Install the Pump

1. Determine the static water level.
2. Install the pump in the well.
3. Start the pump and determine the optimum final pumping rate and final stabilized drawdown from static water level. This can be calculated using a graduated cylinder, stopwatch, and water level tape.

Set up a Low Flow Test From a Template

1. Tap the **Gear** icon  to access the Low-Flow section of the App.
2. The **Project** screen appears.

3. Tap the **Template** button. A list of all saved templates appears.
4. Tap on the template you intend to load, and tap the **Load** button.

Set up a Low-Flow Test without a Template

1. Tap the **Gear** icon  to access Low-Flow.
2. The **Project** screen appears.
3. Tap a text-entry field to open the keyboard.
4. Enter the project information. Tap the **Return** button on the keyboard to close the keyboard.
5. Tap the **Next** button to continue to the **Units** screen.
6. If you want to change units, tap the units button and select a different value.
7. Tap the **Next** button to continue to the **Well** screen.
8. Enter the well information.
9. Tap the **Next** button to continue to the **Stabilization** screen.
10. A green checkmark indicates that the stabilization criterion for the parameter is based on percentage rather than an absolute value. Tap a gray box to change from absolute to percentage.
11. Tap the **Next** button to continue to the **Pump** screen.
12. Enter the pump information. The total system volume is calculated using the internal pump volume, the tubing inner diameter, and the tubing length.
13. Tap the **Next** button to continue to the **Purge** screen.
14. Enter the pumping rate you intend to use during the test.
15. Enter the sampling rate you intend to use, or select **Use System Purge Time** if you want the software to assign a sample rate.
16. Enter an estimate of the drawdown you expect during the testing. It is optional to enter notes in the **Notes** field.
17. If you would like to save the test set up information as a template to use again later, tap the **Save** button. You can save it using the default name, or tap the field and enter a new name.

Start a Low-Flow Test

1. After you have entered the setup information, installed the pump, and set up the flow cell you are ready to start the Low-Flow test.
2. From the **Purge** screen tap the **Start** button.
3. The test begins and the sample rate countdown is displayed on screen. The parameters appear after the first countdown is complete.
4. When you are satisfied with the stability of the test, tap the **Accept** button.
5. Enter the final values for drawdown, pumping rate, and total volume pumped.
6. You can accept the default file name, or enter a different name. It is optional to enter notes.
7. Click the **Next** button. The report appears. You can pinch and drag the report to resize the view.

 The test report is saved as a PDF file, which can be emailed or transferred to a computer via iTunes®.

Guidelines and Precautions

- Ensure that the RDO Sensor Cap is pressed firmly over the sensor lens and is flush with the instrument before submerging in liquid.
- Ensure that the pH/ORP sensor is completely inserted into the port, so that no liquid can enter the instrument. Keep the pH/ORP sensor hydrated between uses and during transport.
- Air bubbles are unavoidable in low-flow sampling. Because of this, expect a longer stabilization time for the RDO sensor than for the other sensors.
- For more detailed instructions see the SMARTROLL MP Operator's Manual.
- Do not submerge the battery pack or the mobile display device in liquid.



You must follow the directions on the enclosed **Cleaning and Decontamination** form before returning the equipment to In-Situ Inc.