



# ProSample User Manual

PORTABLE AUTOMATIC SAMPLERS

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a xylem brand



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## THIS IS AN INTERACTIVE DOCUMENT

When viewing this document as an Adobe™ PDF, hovering your cursor over certain phrases will bring up the finger-point icon. Clicking elements of the Table of Contents, website URLs, or references to certain sections will take you automatically to those locations.

*The information contained in this manual is subject to change without notice.  
Effort has been made to make the information in this manual complete, accurate, and current.  
The manufacturer shall not be held responsible for errors or omissions in this manual.  
Consult [YSI.com](http://YSI.com) for the most up-to-date version of this manual.*

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## Safety Information


Please read this entire manual before unpacking, setting up or operating this equipment. Pay attention to all precautionary statements. Failure to do so could result in serious injury to the operator or damage to the equipment. Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in this manual.

**NOTICE:** The manufacturer is not responsible for any damages due to misapplication or misuse of this product including, without limitation, direct, incidental and consequential damages, and disclaims such damages to the full extent permitted under applicable law. The user is solely responsible to identify critical application risks and install appropriate mechanisms to protect processes during a possible equipment malfunction.


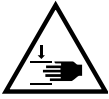
## Precautionary Symbols in the Manual

**NOTE:** Information that requires special emphasis

**NOTICE:** Indicates a situation which, if not avoided, may cause damage to the instrument

 **WARNING:** Indicates a potentially hazardous situation which could result in injury

## Precautionary Symbols on the Instrument

|   |  |
|---|--|
|  | Reference relevant section of this manual for operation and/or safety information  |
|  | Appears on the outside of the peristaltic pump cover. This cover should not be open while the instrument is on, as the user can be seriously injured if they are exposed to moving parts in the peristaltic pump assembly. |

# Intended Use and General Overview

Thank you for purchasing a YSI portable automatic sampler. Samplers in the ProSample series are designed to collect field samples and to provide temporary storage before they are analyzed in a laboratory.

The ProSample portable automatic samplers are designed for use in surface water, stormwater, and wastewater applications. These samplers can be used in a variety of scenarios, most of which are described in this manual. If you have a question regarding the use of a sampler in your project, please contact YSI ([YSI.com/contact-us](https://www.ysi.com/contact-us)) or an authorized YSI distributor.

There are four samplers in the ProSample series. Content in this user manual applies to all ProSample models unless otherwise noted. ProSample models include:

- **ProSample P:** full-size portable sampler
- **ProSample P-12:** full-size portable sampler with SDI-12 connectivity
- **ProSample PM:** mini portable sampler
- **ProSample PM-12:** mini portable sampler with SDI-12 connectivity

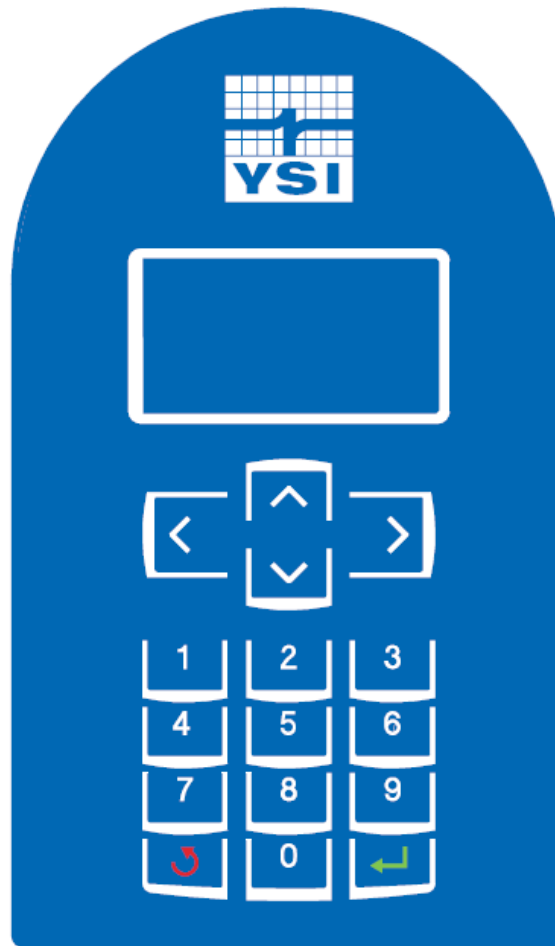
Composite sampling can be completed with all ProSample models. In this type of sampling, a single container is used to collect multiple samples, resulting in a mixture of all samples collected.

Discrete sampling can be completed with the ProSample P and ProSample P-12. In this type of sampling, samples are placed in different bottles. There are several bottle configurations available for the purpose of discrete sampling.

All ProSample models have the following features:

- Robust PE, double-walled, insulated housing for temperature control.
- Easy tube replacement for minimal downtime.
- Spring-loaded roller bearings in the peristaltic pump providing long tubing life.
- Highly accurate sample volume using two capacitive sensors in the peristaltic pump for volume control.
- Simple programming and calibration.
- Long battery life.
- Non-volatile data memory for up to 5 years, so you never have to worry about losing your data if power is lost.

# Keypad Overview



ProSample Keypad

|  |                                      |  |
|--|--------------------------------------|--|
| <p>Select the desired menu.</p> <p>Confirmation of entered values and selections. A confirmed selection is indicated with ✓.</p> | Enter Key                            |  |
| <p>Move within the menu.</p> <p>Move to the next menu.</p> <p>Entry/change of values.</p>  | Arrow Keys                           |  |
| <p>Selection within the menu.</p> <p>Scrolling within the data memory or bottle memory.</p> <p>Entry/change of values.</p>       | Arrow Keys                           |  |
| <p>Return to higher menu level.</p> <p>The activity is canceled.</p>   | Back Key                             |  |
| <p>Terminate sleep mode.</p>   | Back Key<br>Press for at least 5 sec |  |

## LED Functionality

There is an LED on the front of each ProSample that functions as follows:

- **OFF:** Device power is off, battery is dead, or no program is running
- **Solid Green:** Program is running and there are no errors
- **Blinking Green:** Program is running, but the battery is getting low
- **Solid Red:** An error has occurred. The display should be viewed for more information regarding the cause of the error
- **Blinking Red:** Battery capacity is critically low

## Package Contents

Included with each **ProSample**:

- \*5 meter suction hose with screw connection and sinker weight
- 10L PE container (only the ProSample PM and the ProSample PM-12)
- Battery
- USB cable
- Two peristaltic pump tubes
- Printed copy of the ProSample Getting Started Guide

*\*Up to a 30 meter suction hose can be used with any ProSample model.*

Please note the following items *are not included with any ProSample*. These items must be purchased separately.

- Bottle sets and distributor arms for the ProSample P and ProSample P-12
- SDI-12 cable for the ProSample P-12 and ProSample PM-12
- Flow signal cable
- Battery charger
- Other accessories such as strainers

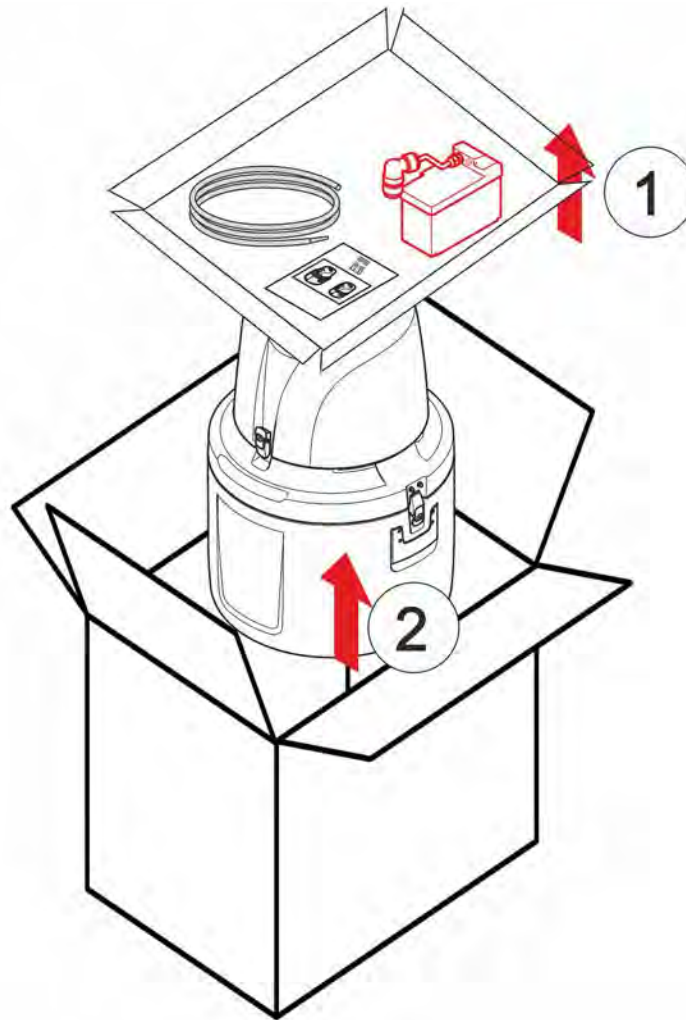
Please see the [Replacement Parts and Accessories](#) section on page 60 for more details and item numbers, including longer suction hose lengths.

The ProSample User Manual, installation file for YSIConnect, and the ProSample Ordering Guide can be found at [YSI.com/ProSample](https://www.ysi.com/ProSample).



# Unpacking

Carefully unpack the unit and accessories, and inspect for shipping damages. Compare received parts with materials listed in the [Package Contents](#) section. Notify YSI immediately of any damage or missing parts. Save all packing materials until satisfactory operation is confirmed.



*Removing the top tray (1) and the ProSample (2) from the packaging*

# Charging the Battery

## Initial Charge

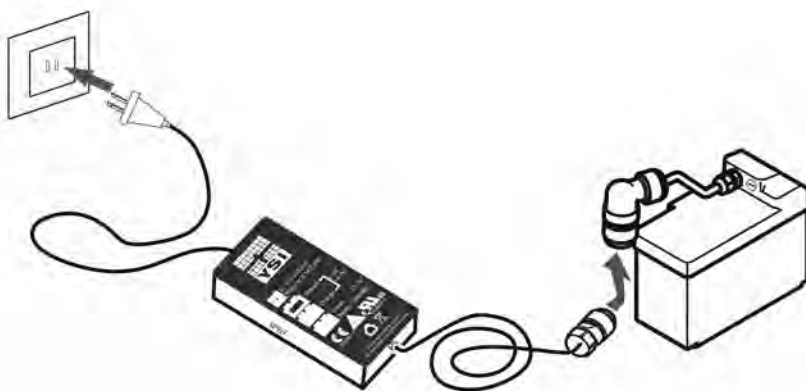
The battery must be completely charged prior to first use. This should take approximately 14 to 16 hours.

**NOTICE:** A total discharge of the battery can result in damage to the battery. A protective mechanism built-in which automatically switches off the device when the voltage is too low (9V or less). However, when storing the battery long-term, regularly connect the battery to the charger to top off the charge, as this will ensure the battery does not completely discharge.

**NOTE:** Please include the battery if the ProSample is returned to YSI for service – see the [Technical Support](#) section on page 66 and the [Service Information](#) section on page 66.

To charge, connect a ProSample battery charger to the battery. Once the red light on the power supply turns to green, the battery is fully charged and can be installed in the ProSample unit.

**NOTE:** There are three different battery chargers available for the ProSample. Please see the [Replacement Parts and Accessories](#) section on page 60 for a list of available chargers.



Connection of the ProSample battery to the battery charger

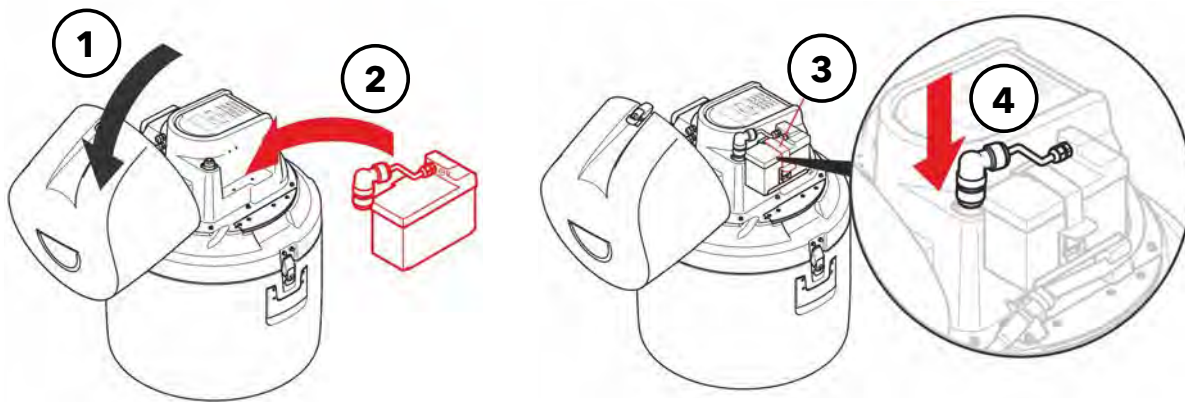
# Battery Installation

The battery pack is not installed in the ProSample during shipment.

**NOTICE:** It is recommended to disconnect the battery from the instrument when transporting the ProSample.

To install the battery.

1. Open the ProSample cover.
2. Insert the battery pack into the battery tray.
3. Secure it with the strap.
4. Connect the battery plug to the battery.



*Battery installation*

## Subsequent Charges

**NOTE:** When charging a new battery, it is recommended to use the steps in the [Initial Charge](#) section on page 10.

The battery must always be installed in the ProSample when the sampler is in use, as the battery is the only way to power the sampler. The ProSample will shut off when the battery drops below 9V.

There are two options for charging the battery that depend on access to mains (AC) power.

### No Mains (AC) Power at Sampling Site

The battery can be periodically charged by removing it from the instrument and charging it with a ProSample battery charger whenever a recharge is needed (see the [Initial Charge](#) section). This is most the common method of powering the instrument when there is no mains (AC) power source located near the ProSample unit.

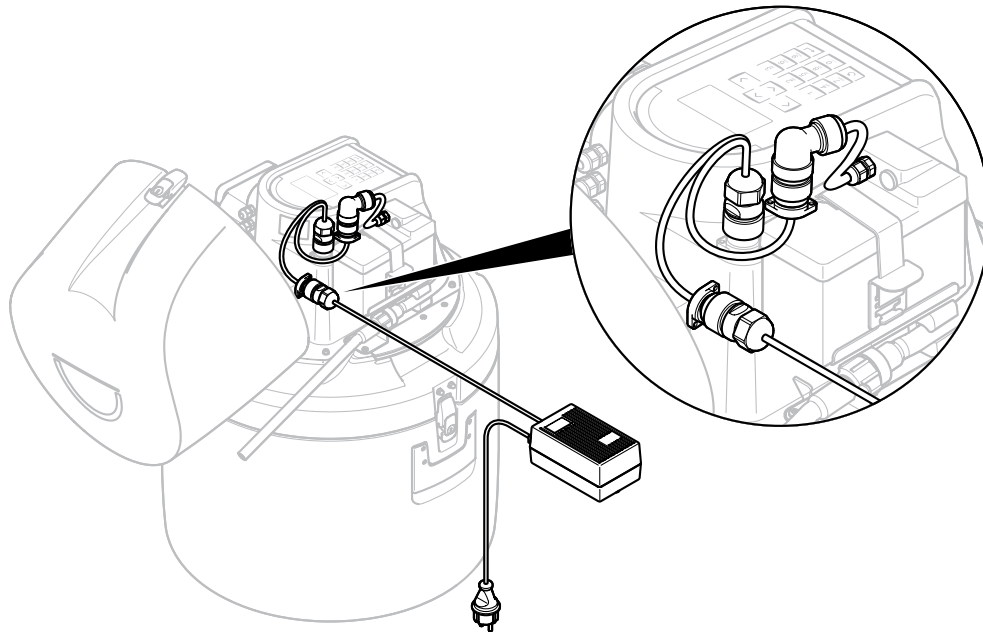
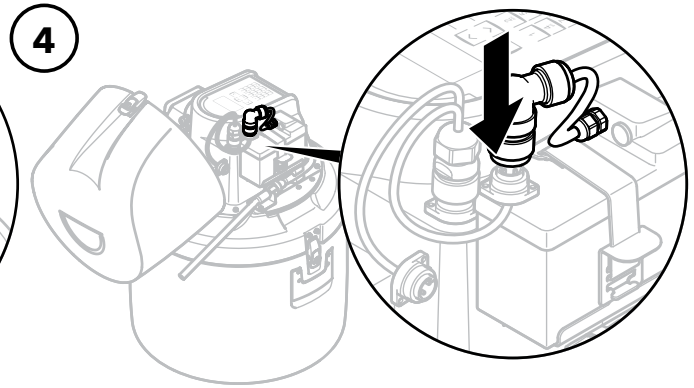
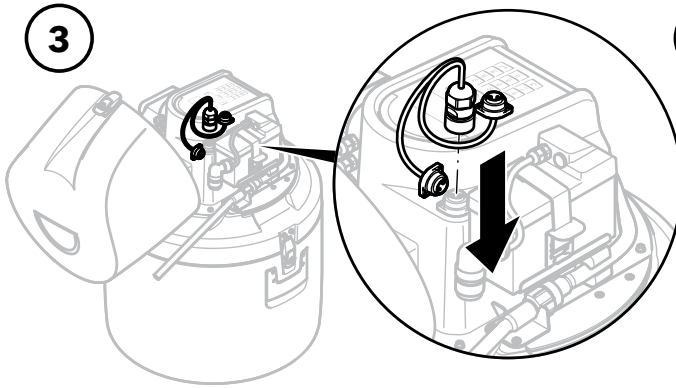
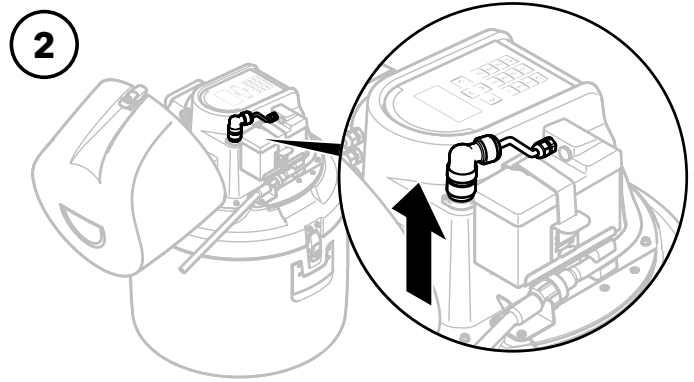
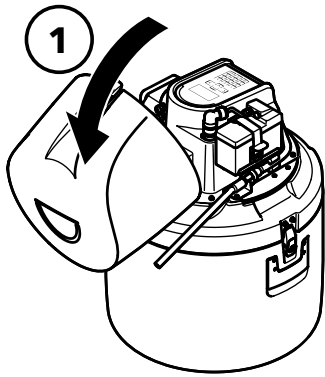
### Mains (AC) Power Available at Sampling Site

It is also possible to keep the battery continuously connected to mains (AC) power. In this scenario, the battery is kept installed in the instrument and an optional Y-cable (item # 0069810) is used to simultaneously connect the battery to the battery charger and the instrument. This is the most common method of powering the instrument where there is a mains (AC) power source located near the ProSample unit. Since the battery charger will typically be outdoors and/or exposed to water, an IP-67 battery charger is recommended (see the [Replacement Parts and Accessories](#) section on page 60).

**NOTE:** The battery must be completely charged prior to first use. It is recommended to initially charge the battery by connecting the battery directly to the battery charger (i.e. the 'Y' cable is not used) – see the [Initial Charge](#) section on page 10. The Y-cable can be used once the battery is initially charged.

For continuous connection of the battery to AC power via the Y-cable:

1. Open the instrument cover.
2. Disconnect the battery from the instrument.
3. Connect the Y-cable to the instrument.
4. Connect the Y-cable to the battery.
5. Connect the Y-cable to the battery charger.



*Using the Y-cable to keep the battery continuously connected to AC power*

# Installing at a Sampling Site

The ProSample unit must be placed on a steady, level surface.

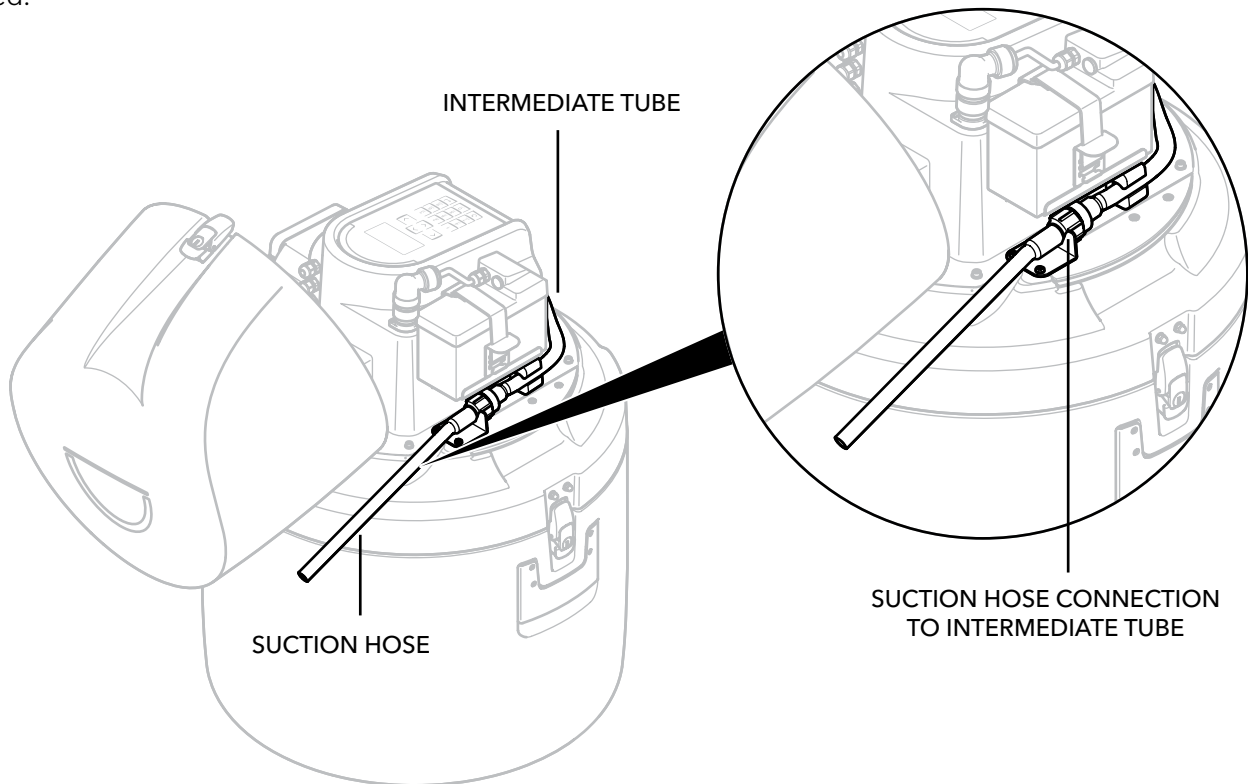
YSI recommends carefully planning out the installation location before drilling any holes, cutting any tubing, etc.

The ProSample should be installed in a location where the sample temperature is between 0 °C and 40 °C. The sampler should not be exposed to explosive substances or an environment with an explosive atmosphere.

**⚠ WARNING:** If the unit is to be continuously connected to AC power, ensure the electrical supply is sufficiently protected against short circuits.

## Suction Hose Connection, Positioning, and Length

The suction hose is the hose that will transport water from the sampling site to the sampler. The other key consideration when installing a ProSample unit is the correct positioning of the suction hose. One end of the suction hose connects to the intermediate tube, while the other end of the suction hose is placed in the environment where samples are collected.



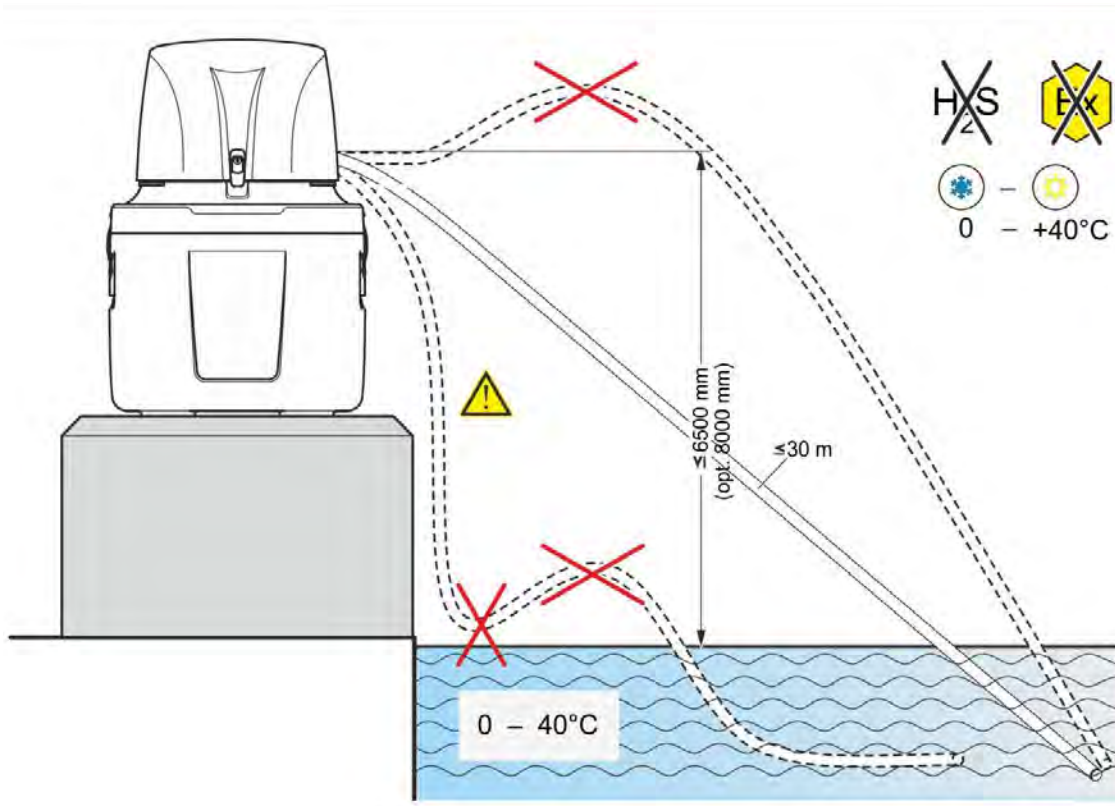
*Suction hose connection to the intermediate tube*

**NOTICE:** The connectors on the ProSample intermediate tube and suction hose are  $\frac{3}{4}$  inch-14BSPP. If not using a YSI suction hose (5, 10, and 20 meter available), ensure the suction hose being used has a  $\frac{3}{4}$  inch-14BSPP connection. A  $\frac{3}{4}$  inch-14BSPP female connection (item # 630127) is available if the suction hose being used does not have a  $\frac{3}{4}$  inch-14BSPP connection.

There is a small gasket zip-tied to the suction hose upon delivery. Place this gasket in the suction hose connector before connecting the suction hose to the intermediate tube. This gasket prevents air from getting in the line, thus ensuring accurate dispensing of solution.

**The suction hose cannot be longer than 30 meters.** In addition, it should be positioned so it is descending in elevation from the sampler to the sampling point. Locations marked with a red 'X' on the figure below are examples where this requirement is not satisfied. Placing the hose in a PVC pipe can help ensure this requirement is met.

The hose should not be coiled, as this can allow water to collect in the excess hose and impede the travel of water through the hose. If the suction hose is longer than needed, remove the sinker weight at the end of the suction hose, cut the suction hose to the desired length, then reinstall the sinker weight.



*Positioning of the ProSample unit and suction hose*

# Instrument Setup and Calibration

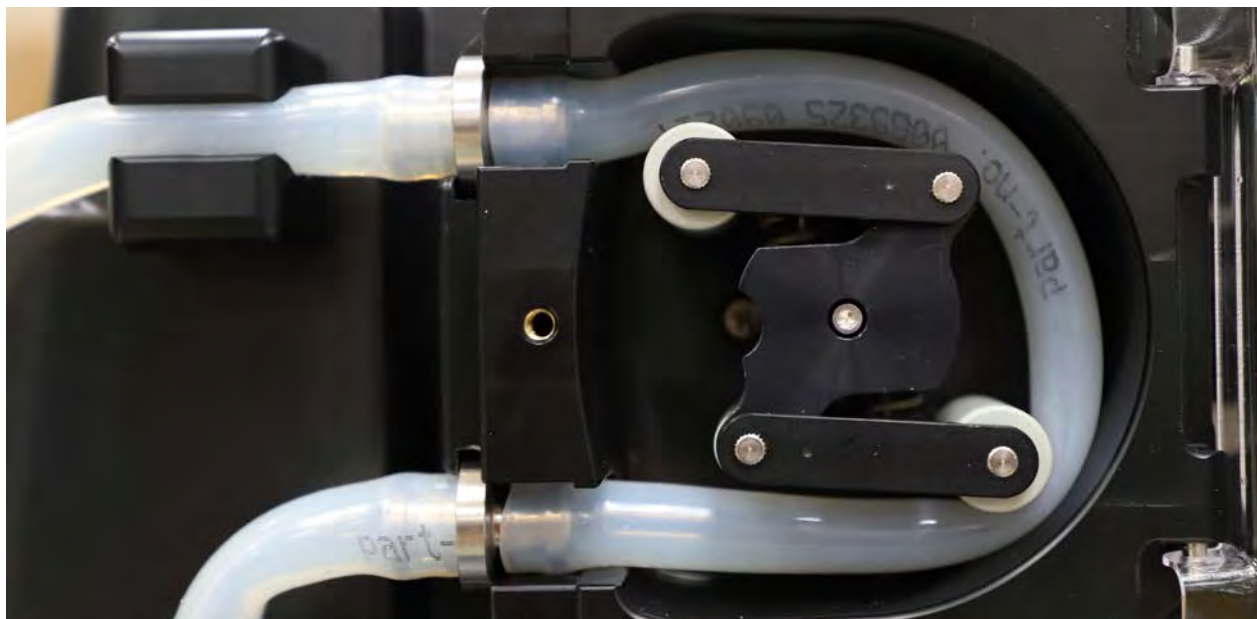
## Installing the Peristaltic Pump Tube

The peristaltic pump tube does not come pre-installed in the ProSample. There are two peristaltic tubes included with each ProSample – one can be found under the lid of the ProSample, while the other is in the top tray of the ProSample packaging. To install the peristaltic pump tube:

1. Turn the ProSample OFF and disconnect the battery.

**⚠ WARNING:** Do NOT attempt to install a peristaltic pump tube or service the pump while the ProSample is ON. The moving components of the pump can cause serious injury.

2. Use a flathead screw driver to loosen the bolt on the outside of the peristaltic pump cover.
3. There are two tube connectors the peristaltic pump tube will connect to – one connector is on the intermediate tube while the other is on the composite sampling tube. Slide the connectors out of the side of the pump housing.
4. Connect the peristaltic pump tube to each tube connector and slide the connectors back into the side of the pump housing.
5. Place the peristaltic pump tube on the outside of the rollers of the peristaltic pump. You may need to turn the roller assembly in order to get the pump tube to properly seat in the pump housing. Refer to the image below.
6. Close the battery cover to the peristaltic pump and tighten the bolt using a flathead screwdriver. Reconnect the battery.

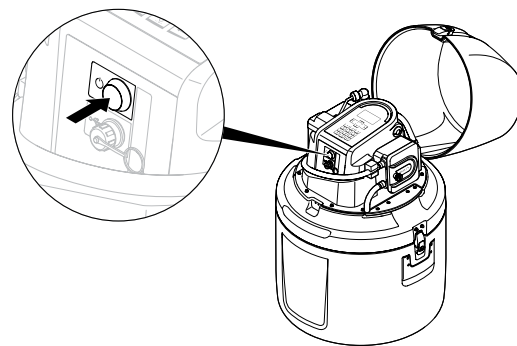


*Installed pump tube*



## Turning the ProSample On

Press the ON/OFF button once to turn the ProSample on. Press and release the button again to turn the unit off.



Turning on the ProSample

## Pump Calibration

The peristaltic pump must be calibrated at each sampling site, as the length and gradient of the suction hose impact the calibration result.

**NOTE:** Calibration in a lab setting can be completed to verify the instrument is functioning properly, but it is still highly recommended to recalibrate the instrument once at the sampling site.

## Calibration Containers

The ProSample is calibrated to an upper and lower volume, resulting in a 2-point calibration. The upper calibration will dispense a large volume of solution, typically over 1000 mL, whereas the lower calibration will dispense a small volume, around 250 mL.

The volume dispensed during calibration will need to be accurately measured. It is recommended to obtain a large, plastic graduated cylinder and a small, plastic graduated cylinder when measuring the amount of solution dispensed during calibration.

## Calibration Procedure

The following steps describe how to calibrate the ProSample peristaltic pump:



Calibration with large graduated cylinder

1. Turn the ProSample OFF.
2. Remove the top of the ProSample housing and flip it over.
3. Remove the plastic 'elbow' piece from the end of the composite sampling tube. There is a plastic bracket that keeps the composite sampling tube in place during sampling - remove the tube from this bracket.
4. Reinstall the top of the ProSample housing.
5. Pull the composite sampling tube out of the ProSample housing. This will allow solution to be poured directly into a graduated cylinder.
6. Place a graduated cylinder with a volume of at least 2000 mL under the composite sampling tube.
7. Turn the ProSample ON.
8. From the Main Menu, navigate to **Setup** → **System Settings** → **Calibration Vol** → **Volume Calibration** → **Start Upper Volume**. After pressing the Enter key, the ProSample will purge the line and then dispense a large amount of solution into the graduated cylinder three separate times.

9. Do NOT remove the graduate cylinder from underneath the sampling tube until **Enter Actual Value** is displayed on the screen. Enter the amount of solution that was dispensed and press the Enter key.
10. **Start Lower Volume** should appear on the screen. Place a graduated cylinder with a volume of at least 250 mL under the composite sampling tube. After pressing the Enter key, the ProSample will purge the line and then dispense a small amount of solution into the graduated cylinder three separate times.
11. Do NOT remove the graduated cylinder from underneath the sampling tube until **Enter Actual Value** is displayed on the screen. Enter the amount of solution that was dispensed and press the Enter key.

## Calibration Check

The ProSample can dispense a user-specified amount of solution, allowing the pump calibration to be verified. To complete a calibration check:



1. From the Main Menu, navigate to **Manual Sample** → **In Present Bottle**.
2. Place a suitable graduated cylinder underneath the sampling tube.



3. Enter the amount of **Sample Volume** to be dispensed. It is recommended to enter the amount of solution that will typically be dispensed when sampling. Press **Enter**.
4. Observe the amount of solution dispensed and recalibrate if needed.

## After Calibration and/or Calibration Check

1. Turn OFF the ProSample.
2. Insert the composite sampling tube into the hole in the ProSample housing.
3. Remove the top of the ProSample housing and flip it over.
4. Reinstall the plastic 'elbow' piece on the end of the composite sampling tube. There is a plastic bracket that keeps the composite sampling tube in place during sampling – place the tube in this bracket.
5. Reinstall the top of the ProSample housing.



## Installing Sample Bottle(s)

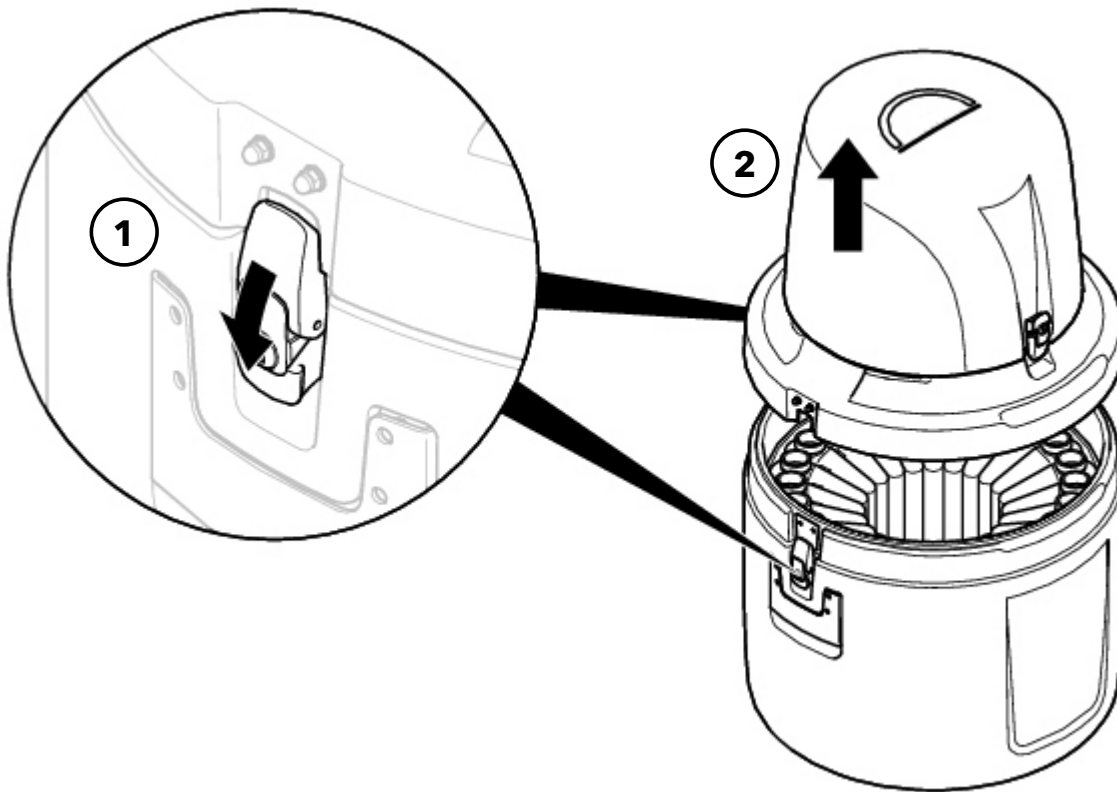
There are several bottle configurations available for the ProSample P and ProSample P-12. Plastic (PE) and glass bottle sets are available. Please see the [Replacement Parts and Accessories](#) section on page 60 for a complete listing of available bottle sets.

If multiple bottles will be installed in a ProSample P or ProSample P-12, a distributor arm must be installed. Please see [Installing a Distributor Arm](#) on page 21.

A single 10 liter PE bottle can be placed in the ProSample PM and ProSample PM-12, but no other bottles can be used, as a distributor arm cannot be installed in the mini samplers.

## Remove the Top of the Housing

Disconnect the clips that hold the top part of the housing to the rest of the instrument. Lift the top part of the housing off the instrument.

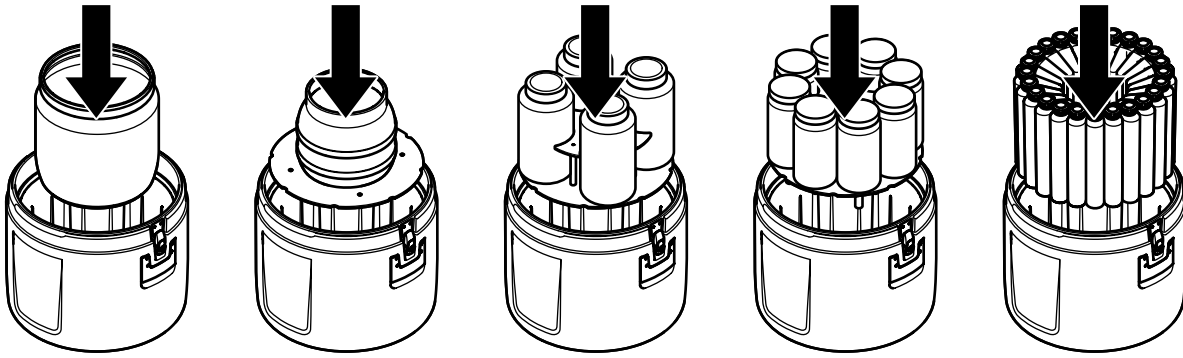


*Removal of the top part of the ProSample housing*

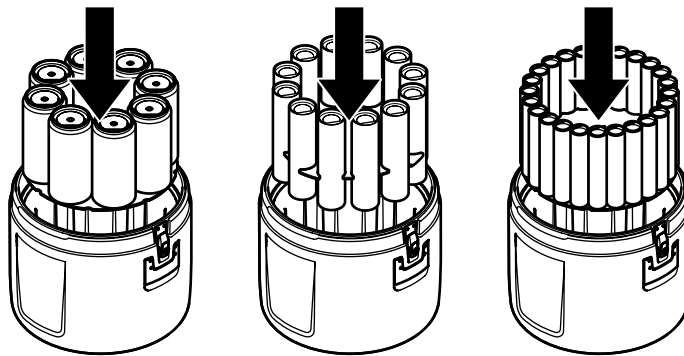
## Prepare Sample Bottles and Install

Ensure the sample bottles are clean and suitable for use before installing in the bottom ProSample housing.

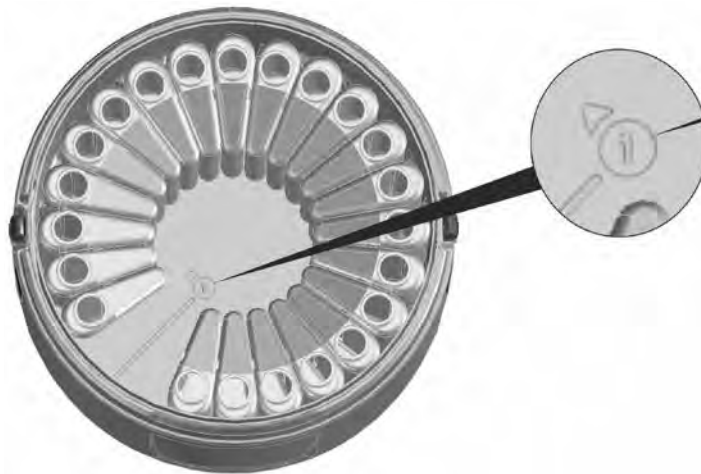
**NOTE:** A fixing plate is included with some bottle sets. If a fixing plate is included with your bottle set, it should also be installed in the bottom ProSample housing.



*Installation of plastic (PE) bottles*



*Installation of glass bottles*



*Bottle #1 position and filling direction on the ProSample P and ProSample P-12 housing*

## **Reattach the Top of the Housing**

After installing the sample bottle(s), reattach the top part of the housing by lining it up with the bottom part of the housing. Use the clips on the side of the instrument to secure the top part of the housing to the bottom.

## Installing a Distributor Arm

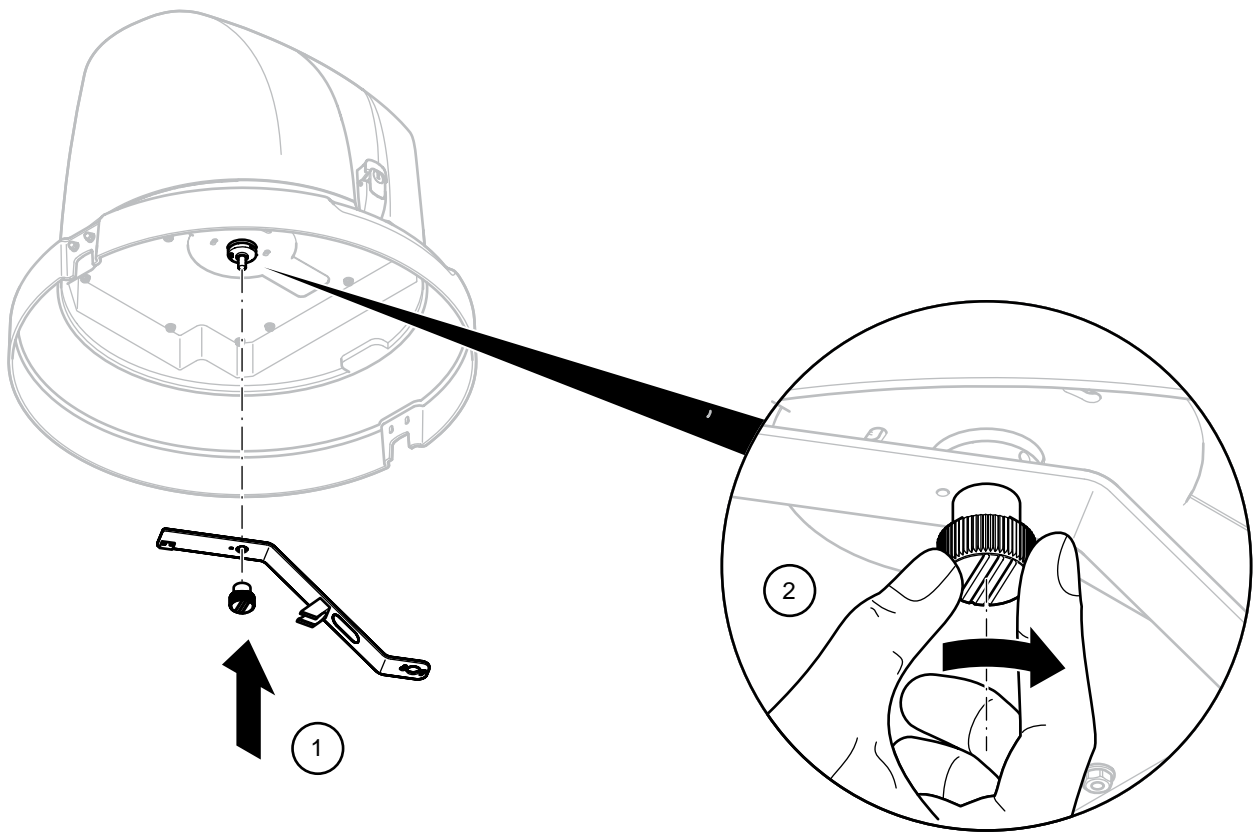
Multiple bottles can be placed in the ProSample P and ProSample P-12, allowing for the collection of discrete sample (see [Installing Sample Bottle\(s\)](#) on page 19). If multiple bottles are to be used, a distributor arm must be installed.

There are two distributor arms available for the ProSample P and ProSample P-12. Each distributor arm includes a pre-installed distributor tube.

- Item # 630112 is for the following bottle sets: 24 x 1 L PE, 8 x 2L glass, 12 x 950 mL glass, and 24 x 350 mL glass.
- Item # 630113 is for the following bottles sets: 4 x 4L PE and 8 x 2 L PE.

To install a distributor arm:

1. Disconnect the composite sampling tube from the tube connector on the peristaltic pump housing.
2. Flip over the top of the ProSample housing and remove the composite sampling tube.
3. Remove the bolt with a red top. This covers the distributor arm axle.
4. Place the distributor arm on the axle by lining up the pin on the axle with the hole on the distributor arm. Install the bolt with the red top and hand-tighten.



5. There is a plastic bracket on the bottom of the ProSample housing that keeps the distributor tube in place during sampling – place the distribution tube into this plastic bracket.
6. Slide the end of the distributor tube into the hole near the peristaltic pump.
7. Reinstall the top of the ProSample housing.
8. Attach the distributor tube to the tube connector on the peristaltic pump housing.

# Configure Key Instrument Settings

There are seven key instrument settings that are used for each program created. From the Main Menu, navigate to the following screens to modify these key settings:



## 1. Setup → Date/Time

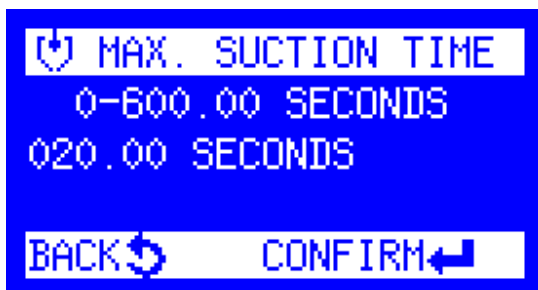


## 2. Setup → System Settings → Language



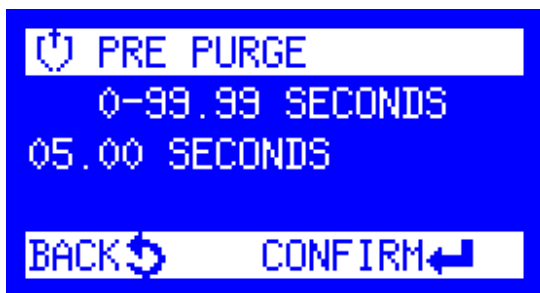
## 3. Setup → System Settings → Distributor (ProSample P and ProSample P-12 Only)

On the ProSample P and P-12, select the number of bottles (1, 4, 8, 12 or 24 ) that will be used (see [Installing Sample Bottle\(s\)](#) on page 19).



## 4. Setup → System Settings → Max. Suction Time

The maximum suction time determines how long the ProSample will wait to display an error and shut off the pump when no water is detected by the instrument's sensors.



#### 5. Setup → System Settings → Pre purge

In order to clear the line of moisture and remove debris that may have collected around the suction hose opening, the peristaltic pump will push air through the suction hose before a new sample is collected. Pre purge identifies the amount of time air will be pushed through the suction hose.

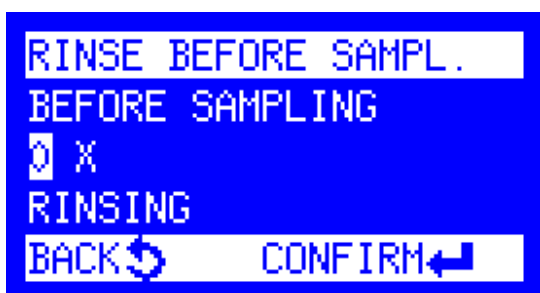
The recommended Pre purge time depends on the length of the suction hose. To identify the **exact** amount of Pre purge time needed, set Pre purge to a relatively high value (e.g. 10 seconds). Once a Pre purge cycle starts, use a stopwatch to determine how long it takes for air to be blown out of the suction hose. This amount of time can then be entered for Pre purge.

**NOTE:** The ProSample can be manually purged by going to **Diagnostics/Test → Component Test → Pump**. Press the right arrow key to run the pump backwards for purging.



#### 6. Setup → System Settings → Post purge

Post purge is the amount of time the peristaltic pump will push air through the line after a sample is collected. It is recommended to set the Post purge to the same value as Pre purge.



#### 7. Setup → System Settings → Rinse Before Sampl.

Rinse Before Sampl. is the number of times the suction hose will be rinsed with sample solution before a sample is collected. Up to 3 rinses can be completed.

# Wiring and Connecting Analog, Digital I/O, and SDI-12 Devices

The ProSample P and ProSample PM can be configured to sample based on measurements/signals from analog and digital I/O devices, while the ProSample P-12 and ProSample PM-12 can additionally be configured to sample based on measurements from SDI-12 devices (e.g. EXO3 sonde).

## Flow Signal Cable Wiring

The flow signal cable (item # 630147) can be used to send a digital, analog, or event signal to the ProSample. One end of this cable has flying leads so it can be connected to an analog and/or digital device, while the other end can be connected to the Signal Input on the ProSample. Please refer to the wire colors below when connecting the flow signal cable to the digital and/or analog device.

| Wire Color | Reference Number | Input Signal | Purpose                        |
|------------|------------------|--------------|--------------------------------|
| Brown      | 1                | Analog +     | Connection of an analog device |
| White      | 2                | Analog -     | Connection of an analog device |
| Grey       | 3                | Com          | Connection of a digital device |
| Yellow     | 4                | Digital      | Connection of a digital device |
| Green      | 5                | Event        | Event                          |

**NOTE:** The above table is only relevant if item #630147 is used.

**NOTE:** An analog and digital device can be connected to the ProSample using the flow signal cable.

**NOTE:** The green and common (grey) can be connected to a relay connection. When the relay closes, an event is triggered and sampling will start.



# Calibrating the Analog Signal

The analog signal coming to the ProSample from an analog device must be calibrated before configuring any analog program. To calibrate the analog signal:



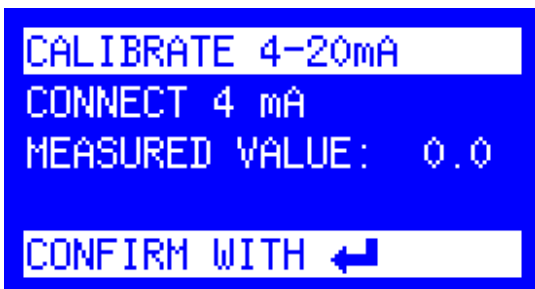
1. From the Main Menu, select **Setup** → **System Settings** → **Analog Signal** → **Calibration**



2. **Analog 4-20 mA** and **Analog 0-20 mA** are available options. Highlight the appropriate option for your device and press the Enter key.



3. On your analog device, choose to output a mA value that corresponds to the low value of the range selected in step #3. As an example, if 4-20 mA was selected in step #3, output a 4 mA signal from your analog device.



4. The **Measured Value** on the ProSample display should equal (or nearly equal) the desired mA value. Press the Enter key to confirm. As an example, if 4 mA is the signal sent from the analog device, the Measured Value might be equal to 3.9 mA. Please note the screenshot below was taken before the mA device sent a 4 mA signal to the ProSample.

5. On your analog device, choose to output 20 mA.
6. The **Measured Value** on the ProSample display should equal (or nearly equal) 20 mA. Press the Enter key to confirm.
7. The ProSample will display **Calibration Done**. Press the Enter key to return to the System Settings menu.

## SDI-12 Cable Wiring

There are two SDI-12 cables available from YSI for use with the ProSample P-12 and ProSample PM-12.

### SDI-12 Cable with Flying Leads

One end of item # 630146 has flying leads for connecting to an SDI-12 device or a Signal Output Adapter for the SDI-12 device (e.g. YSI EXO1 and YSI EXO2). The other end of this cable is connected to the SDI-12 input on the ProSample P-12 or ProSample PM-12.

Please refer to the wire colors below when connecting the flow signal cable to the digital and/or analog device, as well as the manual for your SDI-12 device .

| Wire Color | Reference Number | Description  |
|------------|------------------|--------------|
| Brown      | 1                | SDI-12 DATA  |
| White      | 2                | SDI-12 GND   |
| Grey       | 3                | 12 VDC       |
| Yellow     | 4                | GND          |
| Green      | 5                | Error Signal |
| Blue       | 6                | 12 VDC       |
| Pink       | 7                | Prog. Input  |

### SDI-12 Cable with EXO3 Connector

620145 cables have all of the connections necessary to directly connect a YSI EXO3 directly to the ProSample P-12 and ProSample PM-12. Therefore, no wiring is needed. These cables are offered in lengths of 2, 4, 10, 15, and 33 meters.

### Connection of the Flow Signal Cable and/or SDI-12 Cable

There are two connectors on the side of the ProSample near the peristaltic pump. The top connector is for the flow signal cable, while the bottom connector (ProSample P-12 and ProSample PM-12 only) is for connection of an SDI-12 cable.

# Programming

The ProSample can be used in a variety of scenarios that range from simple to complex. This programming section reviews the most common sampling scenarios. Please contact [YSI Technical Support](#) if you would like to use the ProSample in a sampling scenario that is not described in this manual.

**NOTE:** A complete review of the ProSample menu can be found in [Appendix A: ProSample Menu Tree](#).

ProSample units with an SDI-12 input (ProSample P-12 and ProSample PM-12) can be used in all of the scenarios described below, while ProSample units without an SDI-12 input (ProSample P and ProSample PM) can be used for all scenarios except SDI-12 parameter-driven sampling.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

## Sampling Scenario List and Descriptions

- 1. Stand-Alone Sampling:** The ProSample will collect samples at a user-defined interval. All ProSample models can be used for this sampling scenario. See page 28.
- 2. Analog Input Trigger:** The ProSample will begin collecting samples when a 4-20 mA device (e.g. YSI Amazon Bubbler or YSI IQSN sensor) meets user-defined sampling criteria. All ProSample models can be used for this sampling scenario. See page 32.
- 3. Analog Input Volume-Modulation:** The ProSample will begin collecting samples when a 4-20 mA device (e.g. YSI Amazon Bubbler or YSI IQSN sensor) meets user-defined sampling criteria. The amount of sample collected depends upon the 4-20 mA signal. All ProSample models can be used for this sampling scenario. See page 38.
- 4. Digital Pulse Input Trigger:** The ProSample will trigger a program to start collecting samples when a digital pulse is sent to the ProSample from a digital device, such as a data logger or digital flow meter. The ProSample P-12 and ProSample PM-12 can be used for this sampling scenario. See page 42.
- 5. Digital Pulse Input Event:** The ProSample will take a sample **each time** it receives a digital pulse from a digital device, such as a data logger or digital flow meter. All ProSample models can be used for this sampling scenario. See page 45.
- 6. SDI-12 Parameter-Driven Sampling:** Samples will be collected when parameter(s) from an SDI-12 device (e.g. YSI EXO3 sonde) meet user-defined sampling criteria. The ProSample P-12 and ProSample PM-12 can be used for this sampling scenario. See page 48.

## Stand-Alone Sampling

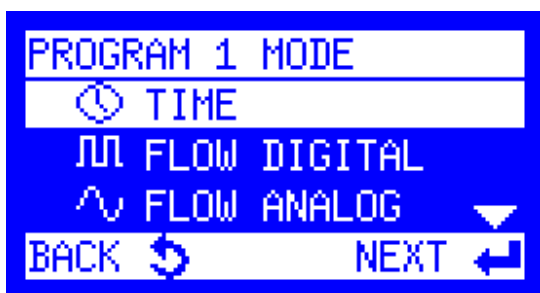
The ProSample will collect samples at a user-defined interval. All ProSample models can be used for this sampling scenario. A flow signal cable and/or SDI-12 cable is **not** required to run this program.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

**NOTE:** Screenshots demonstrate an example setup. Settings should be adjusted for your specific application.



1. From the Main Menu, select **Program** → **Change**. Choose the program you would like to modify by using the left and right arrow keys. In this example, we will modify Program # 1. Press the Enter key to begin modifying the program.



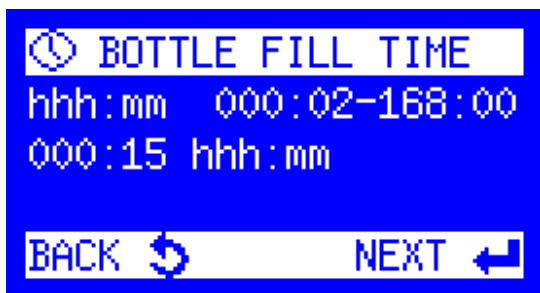
2. Highlight **Time** and press the Enter key.



3. Enter a **Sampling Interval**. This determines how often a sample will be collected and is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



4. The **Sample Volume** is displayed. This is the amount of sample that will be collected at each Sampling Interval. The Sample Volume is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



5. The **Bottle Fill Time** is displayed.

If using a *composite bottle*, Bottle Fill Time determines how long the program will run. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 2 hours, then the ProSample will collect 100 mL of sample every 15 minutes for 2 hours, resulting in a total of 800 mL of sample collected.

If using *discrete sampling bottles* (i.e. more than one bottle is used), Bottle Fill Time determines how many times each bottle in the program will be filled. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 15 minutes (i.e. the same as Sampling Interval), then *each bottle is only filled once* and each bottle will contain 100 mL of sample. The entire length of the program is determined by the number of bottles that will be filled (see steps # 5-7). Therefore, every 15 minutes a different bottle will be filled. If there are 6 bottles, the entire program length will be 90 minutes.

As another example of discrete sampling, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 45 minutes (i.e. three times longer than Sampling Time), then each bottle is filled three times and each bottle will contain 300 mL of sample



6. The **Info** screen is displayed.

If there is only one bottle installed (composite sampling):

- Select **Settings Complete** and the ProSample will return to the Programs menu. Skip to step # 10.

If there is a distributor arm and multiple bottles installed (discrete sampling):

- Select **More Settings** → **Bottle Selection**.
  - ◆ If you would like to fill all bottles in the sampler, select **All Bottles**. Return to the More Settings menu by pressing the Back key once, and then select Programming OK. Skip to step #10.
  - ◆ If you only want to fill certain bottles, select **Bottle Selection** then continue with step #7 below.





7. **First Bottle** is displayed if the ProSample has more than one bottle installed. Enter the bottle number in which the first sample should be placed. Press the Enter key.



8. **Last Bottle** is displayed. Enter the bottle number in which the last sample should be placed. Press the Enter key.



9. The **More Settings** menu is displayed. Highlight **Programming OK** and press the Enter key. The **Programs** menu is displayed.

10. To run the program, highlight **Start** and press the Enter key.

**NOTE:** Ensure the instrument is calibrated before running any programs. Please see the [Pump Calibration](#) section (pg. 17).

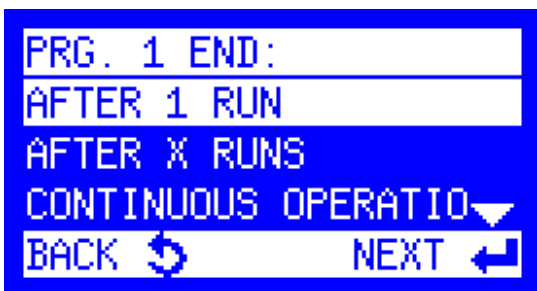


11. Use the right arrow key to select the program to run. Press the Enter key.



12. Choose when the program should start. Press the Enter key.

**NOTE:** Ensure the date and time of the unit is correct. See [Configure Key Instrument Settings](#) on page 22.



13. Choose when the program should end. Press the Enter key.

## Analog Input Trigger

In this type of program, sampling will only occur when the trigger criteria are met. If the trigger criteria are no longer met while the program is active, sampling will pause. Sampling will continue if and when the trigger criteria are met again and will continue until the program is complete.

All ProSample models can be used for this sampling scenario. A flow signal cable (item # 630147) must be connected to the analog device and the ProSample. As is shown in the [Flow Signal Cable Wiring](#) section on page 24, the brown and white wires should be used when connecting the flow signal cable to the analog device.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

**NOTE:** Screenshots demonstrate an example setup. Settings should be adjusted for your specific application.

**NOTE:** The analog signal should be calibrated before running an analog program. See [Calibrating the Analog Signal](#) on page 25.



1. From the Main Menu, select **Setup** → **System Settings** → **Measurement Inputs**
2. **Trigger (CH)** is displayed. Use the right arrow key to select the trigger channel to configure. Press the Enter key to configure this channel.



3. Highlight **Analog 1** and press the Enter key.



4. The **Unit** does not ultimately impact the measurement result, but a unit does need to be used. In this example, m will be used as the 'dummy' unit. After highlighting a unit, press the Enter key.





5. Input a 0/4 mA value. In this example, **4** will be entered. After entering a value, press the Enter key.



6. Input a 20 mA value. In this example, **20** will be entered. After entering a value, press the Enter key.

7. Select the type of **Limit Value** to be used.

If a **Low Setpoint** is selected, any measurement value lower than the Low Setpoint will trigger samples to be taken. As an example, if a Low Setpoint of 6 mA is entered, then sampling will be triggered once the mA value lowers to 6.

If a **High Setpoint** is selected, any measurement value higher than the High Setpoint will trigger samples to be taken. As an example, if a High Setpoint of 10 mA is entered, then sampling will be triggered once the mA value increases to 10.



8. Enter the Setpoint value and press the Enter key.



9. The ProSample will request a **Deadband** be entered.

If a High Setpoint is entered, Deadband is the value which the mA signal must drop below before sampling no longer occurs. As an example, if 10 mA is the High Setpoint and a Deadband of 0.5 is entered, the mA signal must drop below 9.5 mA before sampling no longer occurs.

If a Low Setpoint is entered, Deadband is the value which the mA signal must rise above before sampling no longer occurs. As an example, if 5 mA is the Low Setpoint and a Deadband of 0.5 is entered, the mA signal must rise above 5.5 mA before sampling no longer occurs.



10. **Trigger Channel 1** will be displayed. Highlight **Event** and press the Enter key.

11. Go back to the **Main Menu** by pressing the Back key a few times.



12. **Select Programs** → **Change**. Choose the program you would like to modify by using the left and right arrow keys. In this example, we will modify Program # 1. Press the Enter key to begin modifying the program.



13. Highlight **Event Time** and press the Enter key.



14. Enter a **Sampling Interval**. This determines how often a sample will be collected and is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



15. The **Sample Volume** is displayed. This is the amount of sample that will be collected at each Sampling Interval. The Sample Volume is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



16. The **Bottle Fill Time** is displayed.

If using a *composite bottle*, Bottle Fill Time determines how long the program will run. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 2 hours, then the ProSample will collect 100 mL of sample every 15 minutes for 2 hours, resulting in a total of 800 mL of sample collected.

If using *discrete sampling bottles* (i.e. more than one bottle is used), Bottle Fill Time determines how many times each bottle in the program will be filled. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 15 minutes (i.e. the same as Sampling Interval), then *each bottle is only filled once* and each bottle will contain 100 mL of sample. The entire length of the program is determined by the number of bottles that will be filled (see steps # 5-7). Therefore, every 15 minutes a different bottle will be filled. If there are 6 bottles, the entire program length will be 90 minutes.

As another example of discrete sampling, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 45 minutes (i.e. three times longer than Sampling Time), then each bottle is filled three times and each bottle will contain 300 mL of sample.



17. The **Info** screen is displayed.

If there is only one bottle installed (composite sampling):

- Select **Settings Complete** and the ProSample will return to the Programs menu. Skip to step #21.

If there is a distributor arm and multiple bottles installed (discrete sampling):

- Select **More Settings** → **Bottle Selection**.
  - ◆ If you would like to fill all bottles in the sampler, select **All Bottles**. Return to the More Settings menu by pressing the Back key once, and then select **Programming OK**. Skip to step #21.
  - ◆ If you only want to fill certain bottles, select Bottle Selection and continue with step #18.

18. **First Bottle** is displayed if the ProSample has more than one bottle installed. Enter the bottle number in which the first sample should be placed. Press the Enter key.

19. **Last Bottle** is displayed. Enter the bottle number in which the last sample should be placed. Press the Enter key.

20. The **More Settings** menu is displayed. Highlight **Programming OK** and press the Enter key. The **Programs** menu is displayed.

21. To run the program, highlight **Start** and press the Enter key.

**NOTE:** Ensure the instrument is calibrated before running any programs. Please see the [Pump Calibration](#) on page 17.

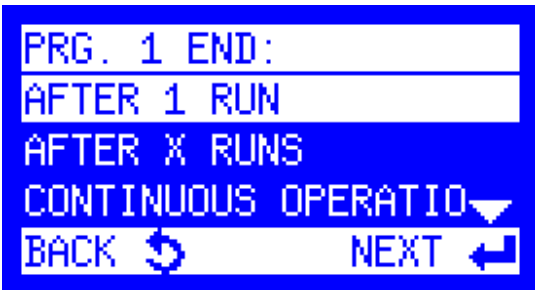


22. Use the arrows to select the program to run. Press the Enter key.



23. Choose when the program should start. Press the Enter key.

**NOTE:** Ensure the date and time of the unit is correct. See [Configure Key Instrument Settings](#) on page 22.



24. Choose when the program should end. Press the Enter key.

25. The program will start sampling once the Trigger criteria have been met. As an example, if the High Setpoint is 10 m and Deadband is 0.5, the ProSample will not take a sample until the mA signal reaches a value of at least 10 and will not stop sampling unless the mA value drops below 9.5 or all bottles have been filled. If the mA value drops below 9.5 and then raises to a value higher than 10, sampling will continue until all bottles have been filled.

## Analog Input Volume Modulation

In this type of program, the ProSample will begin collecting samples when a 4-20 mA device (e.g. YSI Amazon Bubbler or YSI IQSN sensor) meet user-defined sampling criteria. The amount of sample collected depends upon the 4-20 mA signal.

All ProSample models can be used for this sampling scenario. A flow signal cable (item # 630147) must be connected to the analog device and the ProSample. As is shown in the [Flow Signal Cable Wiring](#) section on page 24, the brown and white wires should be used when connecting the flow signal cable to the analog device.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

**NOTE:** Screenshots demonstrate an example setup. Settings should be adjusted for your specific application.

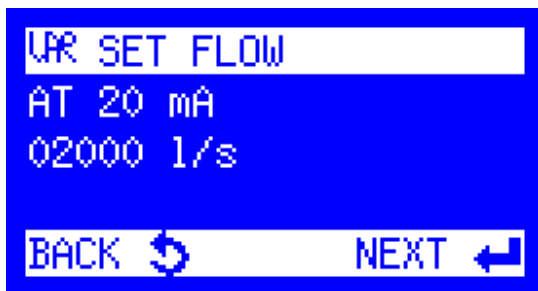
**NOTE:** The analog signal should be calibrated before running an analog program. See [Calibrating the Analog Signal](#) on page 25.



1. From the Main Menu, select **Programs** → **Change**. Choose the program you would like to modify by using the left and right arrow keys. In this example, we will modify Program # 1. Press the Enter key to begin modifying the program.
2. Highlight **Variable Time** and press the enter key.



3. **Var Unit** is displayed. This ultimately does not impact the measurement result, but a unit does need to be used. In this example, l/s will be used as the 'dummy' unit. After highlighting a unit, press the Enter key.



4. **Var Set Flow at 20 mA** is displayed. Although the value entered here ultimately does not impact the measurement result, it can be used to document the measurement value (e.g. flow) that corresponds to a mA signal of 20 mA. After entering a value, press the Enter key.



5. Enter a **Var Sample Interval**. This determines how often a sample will be collected and is determined by the user based on the application and sampling requirements.



6. The **Var Sample Volume 20 mA** is displayed. This is the amount of solution that should be collected when the mA signal is 20 mA. Enter a value and press the Enter key.

**NOTE:** The Var Sample Volume should be lower than or equal to the Max Sample Volume set under **Setup** → **System Settings** → **Max. Sample Volume**.



7. **Var Fill Mode** is displayed. **Time Related** is the only option, so the Enter key can be pressed.
8. Enter a **Var Fill Time**.

If using a *composite bottle*, Var Fill Time determines how long the program will run. As an example, if Sample Interval is set to 15 minutes and Var Fill Time is set to 2 hours, the ProSample will collect a total of 8 samples in the composite bottle. The amount collected will vary based on the mA signal at the time of sampling (e.g. 500 mL collected at 20 mA and 0 mL collected at 4 mA).

If using *discrete sampling bottles* (i.e. more than one bottle is used), Var Fill Time determines how many times each bottle in the program will be filled. As an example, if Sample Interval is set to 15 minutes and Var Fill Time is set to 15 minutes (i.e. the same as Sampling Interval), then *each bottle is only filled once* and each bottle will contain a volume of sample that varies based on the mA output at the time of sample collection. The entire length of the program is determined by the number of bottles that will be filled (see steps # 5-7). Therefore, every 15 minutes a different bottle will be filled. If there are 6 bottles, the entire program length will be 90 minutes.



9. The **Var Max. Sample Volume** is displayed. Enter a value that is larger than the Var Sample Volume 20 mL (see step #6) but smaller than or equal to the maximum sample volume of the containers being used (e.g. 1000 mL when using 1000 mL bottles).



10. Highlight a **Var Function** and press the Enter key. This determines what will happen if there is more solution that will be placed in a bottle than the bottle can actually hold (see Var Max. Sample Volume). It is recommended to highlight **Drop Samples** and press the Enter key.



11. The **Info** screen is displayed.

If there is only one bottle installed (composite sampling):

- Select **Settings Complete** and the ProSample will return to the Programs menu. Skip to step #15.

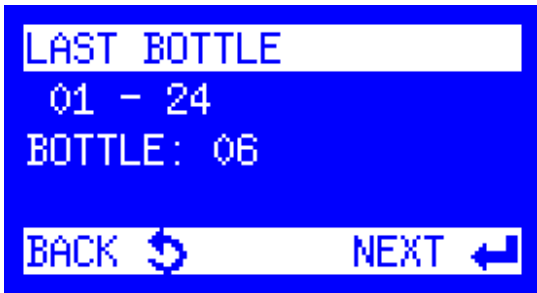
If there is a distributor arm and multiple bottles installed (discrete sampling):

- Select **More Settings** → **Bottle Selection**.
  - ◆ If you would like to fill all bottles in the sampler, select **All Bottles**. Return to the More Settings menu by pressing the Back key once, and then select **Programming OK**. Skip to step #15.
  - ◆ If you want only to fill certain bottles, select **Bottle Selection** and continue with step #12.



12. **First Bottle** is displayed if the ProSample has more than one bottle installed. Enter the bottle number in which the first sample should be placed. Press the Enter key.





13. **Last Bottle** is displayed. Enter the bottle number in which the last sample should be placed. Press the Enter key.

14. The **More Settings** menu is displayed. Highlight **Programming OK** and press the Enter key. The **Programs** menu is displayed.



15. To run the program, highlight **Start** and press the Enter key.

**NOTE:** Ensure the instrument is calibrated before running any programs. Please see the [Pump Calibration](#) on page 17.

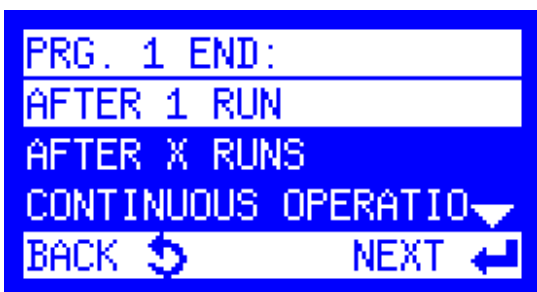


16. Use the arrows to select the program to run. Press the Enter key.



17. Choose when the program should start. Press the Enter key.

**NOTE:** Ensure the date and time of the unit is correct. See [Configure Key Instrument Settings](#) on page 22.



18. Choose when the program should end. Press the Enter key.

19. The amount of sample collected will vary based on the mA signal from the analog device.

## Digital Pulse Input Trigger

In this sampling scenario, a sampling program will automatically start when a pulse is received from a digital device. The program will continue until it is complete, even if a pulse is only sent once from the digital device to the ProSample. Therefore, a digital pulse essentially triggers a stand-alone sampling program to start.

This sampling scenario can only be completed with the ProSample P-12. The SDI-12 cable with flying leads (item #630146) must be used. Please refer to the [SDI-12 Cable with Flying Leads](#) section on page 26 or [contact YSI](#) for assistance when setting up this sampling scenario.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

**NOTE:** Screenshots demonstrate an example setup. Settings should be adjusted for your specific application.



1. From the Main Menu, select **Setup** → **System Settings** → **Program Inputs** → **Program Input**.

2. Highlight **Prg. Start Pulse** and press the Enter key.



3. Select a **Program Input**. If no other programs will be configured (e.g. SDI-12 or analog programs), **Program 1 Start** can be selected. Otherwise, select an appropriate Program Input given the other programs that will be configured.

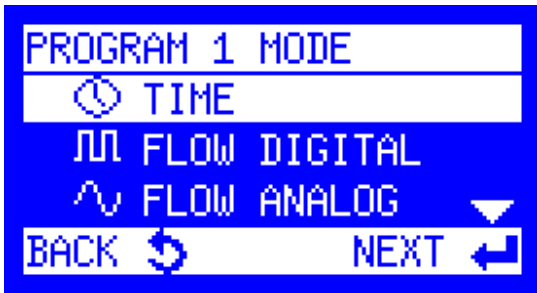


4. Press the Enter key. This will add a checkmark next to the appropriate Program Input.



5. Go back to the **Main Menu** by pressing the Back key a few times.

6. Select **Programs** → **Change**. Choose the program you would like to modify by using the left and right arrow keys. *The program number selected must match the program number set in steps #3 and 4.*



- Highlight **Time** and press the Enter key.



- Enter a **Sampling Interval**. This determines how often a sample will be collected and is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



- The **Sample Volume** is displayed. This is the amount of sample that will be collected at each Sampling Interval. The Sample Volume is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.

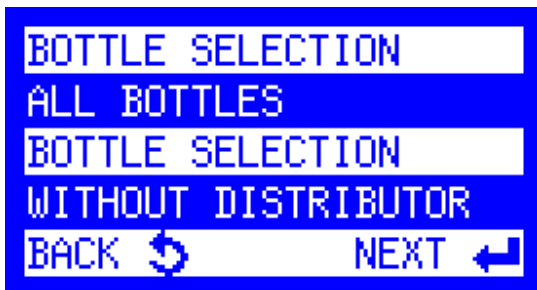


- The **Bottle Fill Time** is displayed.

If using a *composite bottle*, Bottle Fill Time determines how long the program will run. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 2 hours, then the ProSample will collect 100 mL of sample every 15 minutes for 2 hours, resulting in a total of 800 mL of sample collected.

If using *discrete sampling bottles* (i.e. more than one bottle is used), Bottle Fill Time determines how many times each bottle in the program will be filled. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 15 minutes (i.e. the same as Sampling Interval), then *each bottle is only filled once* and each bottle will contain 100 mL of sample. The entire length of the program is determined by the number of bottles that will be filled (see steps # 5-7). Therefore, every 15 minutes a different bottle will be filled. If there are 6 bottles, the entire program length will be 90 minutes.

As another example of discrete sampling, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 45 minutes (*i.e.* three times longer than Sampling Time), then each bottle is filled three times and each bottle will contain 300 mL of sample.



**11.** The **Info** screen is displayed.

If there is only one bottle installed (composite sampling):

- Select **Settings Complete** and the ProSample will return to the Programs menu. Skip to step # 14.

If there is a distributor arm and multiple bottles installed (discrete sampling):

- Select **More Settings** → **Bottle Selection**.
  - ◆ If you would like to fill all bottles in the sampler, select **All Bottles**. Return to the More Settings menu by pressing the Back key once, and then select **Programming OK**. Skip to step #14.
  - ◆ If you only want to fill certain bottles, select **Bottle Selection** and continue with step #12.

**12. First Bottle** is displayed if the ProSample has more than one bottle installed. Enter the bottle number in which the first sample should be placed. Press the Enter key.

**13. Last Bottle** is displayed. Enter the bottle number in which the last sample should be placed. Press the Enter key. The **More Settings** menu is displayed. Highlight **Programming OK** and press the Enter key.

**14.** The program will automatically start when a digital pulse is sent to the ProSample. The program will continue until it is complete, even if a digital pulse is only sent once.

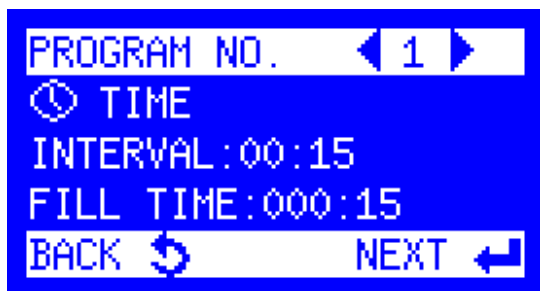
## Digital Pulse Input Event

In this program, sampling will occur each time the ProSample receives a pulse from a digital device (e.g. a data logger). Please refer to the user manual of your device to ensure it is programmed as desired.

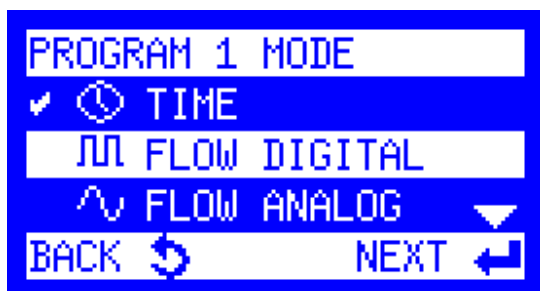
All ProSample models can be used for this sampling scenario. A flow signal cable (item # 630147) must be connected to the digital device and the ProSample. As is shown in the [Flow Signal Cable Wiring](#) section on page 24, the grey and yellow wires should be used when connecting the flow signal cable to the digital device.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

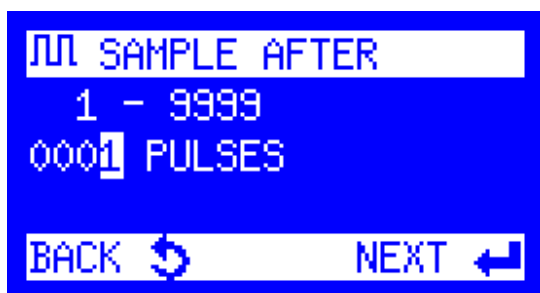
**NOTE:** Screenshots demonstrate an example setup. Settings should be adjusted for your specific application.



1. From the Main Menu, select **Programs** → **Change**. Choose the program you would like to modify by using the left and right arrow keys. In this example, we will modify Program # 1. Press the Enter key to begin modifying the program.



2. Highlight **Flow Digital** and press the Enter key.



3. Enter 0001 for **Sample After**. The data logger will send a pulse to the ProSample when a sample needs to be taken.



- The **Sample Volume** is displayed. This is the amount of sample that will be collected at each Sampling Interval. The Sample Volume is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.
- Fill Mode** is displayed. Highlight **Sample Related** and press the Enter key.

- Samples/Bottle** identifies the number of samples that will be placed in each bottle.

- The **Info** screen is displayed.

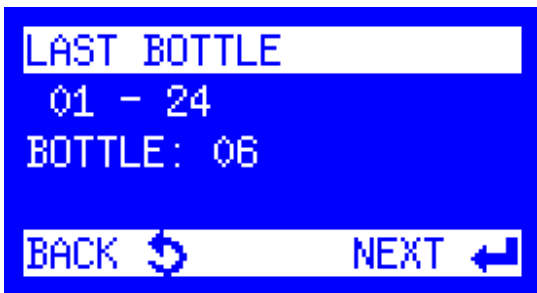
If there is only one bottle installed (composite sampling):

- Select **Settings Complete** and the ProSample will return to the **Programs** menu. Skip to step #11.

If there is a distributor arm and multiple bottles installed (discrete sampling):

- Select **More Settings** → **Bottle Selection**.
  - ◆ If you would like to fill all bottles in the sampler, select **All Bottles**. Return to the More Settings menu by pressing the Back key once, and then select **Programming OK**. Skip to step #11.
  - ◆ If you only want to fill certain bottles, select **Bottle Selection** and continue with step #8.

- First Bottle** is displayed if the ProSample has more than one bottle installed. Enter the bottle number in which the first sample should be placed. Press the Enter key.



9. **Last Bottle** is displayed. Enter the bottle number in which the last sample should be placed. Press the Enter key.
10. The **More Settings** menu is displayed. Highlight **Programming OK** and press the Enter key. The **Programs** menu is displayed.



11. To run the program, highlight Start and press the Enter key.

**NOTE:** Ensure the instrument is calibrated before running any programs. Please see the [Pump Calibration](#) section on pg. 17.

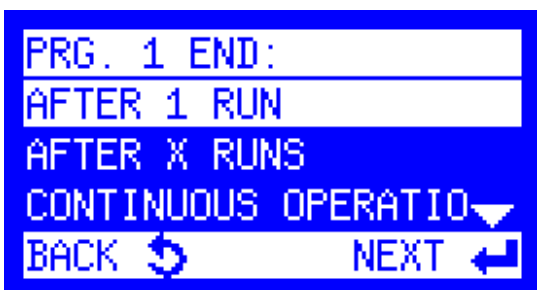


12. Use the right arrow key to select the program to run. Press the Enter key.



13. Choose when the program should start. Press the Enter key.

**NOTE:** Ensure the date and time of the unit is correct. See [Configure Key Instrument Settings](#) on page 22.



14. Choose when the program should end. Press the Enter key.
15. Once the data loggers is connected and the sample criteria (defined during setup of the digital device) are met, the digital device will send a pulse to the ProSample to collect a sample.

## SDI-12 Parameter-Driven Sampling

In this sampling scenario, the ProSample will collect samples based upon measurements from an SDI-12 device (e.g. YSI EXO3 sonde). This sampling scenario can only be completed with the ProSample P-12 and ProSample PM-12. Please refer to the [SDI-12 Cable Wiring](#) section on page 26 when connecting the SDI-12 device to the ProSample.

In order to use an SDI-12 device, the user must configure it properly before programming the ProSample P-12 or ProSample PM-12. As an example, if pH is a trigger parameter, the pH channel on the sonde and the ProSample must be the same (e.g. channel 1). Please consult the user manual of your SDI-12 device regarding proper configuration.

Up to 4 SDI-12 parameters can be configured to trigger sampling. If there is a need for an AND scenario with multiple parameters to trigger sampling (e.g. solution must have pH > 8 **AND** turbidity >124 FNU for sampling to begin), then a data logger must be used to trigger sampling (see [Digital Pulse Input Event](#) on page 45).

There are two different methods of programming the sampler to stop sampling - continuous method and event method. Steps # 9 and 12 in the following procedure determine which method is utilized.

**Continuous method:** If the trigger criteria are met, sampling will occur until the program is complete, even if the trigger criteria are no longer met while the program is active. If more than one SDI-12 parameter is set to trigger sampling, only the continuous method can be used.

**Event method:** Sampling will only occur when the trigger criteria are met. If the trigger criteria are no longer met while the program is active, sampling will pause. Sampling will continue if and when the trigger criteria are met again and will continue until the program is complete.

**NOTE:** The settings modified in the section [Configure Key Instrument Settings](#) on page 22 will be applied to each and every program, so it is important these settings are carefully set before starting any program.

**NOTE:** Screenshots demonstrate an example setup. Settings should be adjusted for your specific application.

The following procedure should be followed for each SDI-12 parameter (up to 4) that will be used to trigger sampling.

**NOTE:** If using the continuous method, it is recommended to program the sampler (i.e. follow the procedure below), place the SDI-12 device in the sampling environment, and then connect the SDI-12 device to the ProSample P-12 or ProSample PM-12. This is recommended because the program is automatically started if the trigger criteria are met (i.e. the program is not started by going to **Program** → **Start**).



1. From the Main Menu, select **Setup** → **System Settings** → **Measurement Input**.
2. **Trigger (CH)** is displayed. Use the right arrow key to select the trigger channel to configure. Press the Enter key to configure this channel.

**NOTE:** Select a different trigger channel for each SDI-12 parameter that will be used to trigger sampling.





3. Highlight an **SDI-12 CHANNEL** to configure and press the Enter key.

**NOTE:** Select a different input channel for each SDI-12 parameter that will be used to trigger sampling. The input channel selected for each parameter should match the channel configured for that parameter on the SDI-12 device.



4. Select the appropriate **Unit** for the channel that is being configured and press the Enter key. In this example, pH is configured to be the Channel 1 unit, as pH is configured to be the channel 1 unit on the EXO3 sonde.
5. Select the **Limit Channel** to be used.

If a **Low Setpoint** is selected, any measurement value lower than the Low Setpoint will trigger samples to be taken. As an example, if a Low Setpoint of 6 is entered, then sampling will be triggered once pH lowers to 6.

If a **High Setpoint** is selected, any measurement value higher than the High Setpoint will trigger samples to be taken. As an example, if a High Setpoint of 8 is entered, then sampling will be triggered once pH increases to 8.



6. Enter the Setpoint value and press the Enter key.



7. The ProSample will request a **Deadband** be entered. Deadband is important when using the Event method of sampling, but *Deadband is not relevant with the Continuous method (any value can be entered since ProSample will continue to run the program until completion).*

If a High Setpoint is entered, Deadband is a value the selected parameter must drop below before sampling no longer occurs (Event method only). As an example, if pH 8 is the High Setpoint and a Deadband of 0.5 is entered, the pH must drop below 7.5 before sampling no longer occurs.

If a Low Setpoint is entered, Deadband is the value the selected parameter must rise above before sampling no longer occurs (Event method only). As an example, if pH 6 is the Low Setpoint and a Deadband of 0.5 is entered, the pH must rise above 6.5 before sampling no longer occurs.



**8. Trigger Channel** is displayed.

To collect samples using the *Event method*, highlight **Event**, then press the Enter key.

To collect samples using the *Continuous method*, highlight **Start Prg. 1**, then press the Enter key.

**NOTE:** *If more than one SDI-12 parameter is set to trigger sampling, only the continuous method can be used.*



**9.** Press the Back key a few times to return to the Main Menu. Select **Programs** → **Change**. Choose the program you would like to modify by using the left and right arrow keys. A different channel must be configured for each SDI-12 parameter that will be used, but the trigger channel number and the program number do not need to be the same (e.g. the trigger/input channel could be #3, but this could be used for program #1). Press the Enter key to begin modifying the program.



**10.** If using the *Event method* (see page 48), highlight Event Time and press the Enter key.

If using the *Continuous method* (see page 48), highlight Time and press the Enter key.

**NOTE:** *If more than one SDI-12 parameter is set to trigger sampling, only the continuous method can be used.*



**11.** Enter a **Sampling Interval**. This determines how often a sample will be collected and is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



**12.** The **Sample Volume** is displayed. This is the amount of sample that will be collected at each Sampling Interval. The Sample Volume is determined by the user based on the application and sampling requirements. Press the Enter key to begin modifying the program.



**13.** The **Bottle Fill Time** is displayed.

If using a *composite bottle*, Bottle Fill Time determines how long the program will run. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 2 hours, then the ProSample will collect 100 mL of sample every 15 minutes for 2 hours, resulting in a total of 800 mL of sample collected.

If using *discrete sampling bottles* (i.e. more than one bottle is used), Bottle Fill Time determines how many times each bottle in the program will be filled. As an example, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 15 minutes (i.e. the same as Sampling Interval), then each bottle is only filled once and each bottle will contain 100 mL of sample. The entire length of the program is determined by the number of bottles that will be filled (see steps # 14-16). Therefore, every 15 minutes a different bottle will be filled. If there are 6 bottles, the entire program length will be 90 minutes.

As another example of discrete sampling, if Sampling Interval is set to 15 minutes, Sample Volume is set to 100 mL, and Bottle Fill Time is set to 45 minutes (i.e. three times longer than Sampling Time), then each bottle is filled three times and each bottle will contain 300 mL of sample



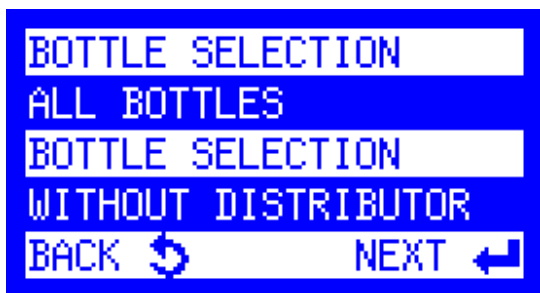
**14.** The **Info** screen is displayed.

If there is only one bottle installed (composite sampling):

- Select **Settings Complete** and the ProSample will return to the Programs menu. Skip to step #18.

If there is a distributor arm and multiple bottles installed (discrete sampling):

- Select **More Settings** → **Bottle Selection**.
  - ◆ If you would like to fill all bottles in the sampler, select **All Bottles**. Return to the More Settings menu by pressing the Back key once, and then select **Programming OK**. Skip to step #18.
  - ◆ If you only want to fill certain bottles, select **Bottle Selection** and continue with step #15.





**15. First Bottle** is displayed if the ProSample has more than one bottle installed. Enter the bottle number in which the first sample should be placed. Press the Enter key.



**16. Last Bottle** is displayed. Enter the bottle number in which the last sample should be placed. Press the Enter key.

**17.** The **More Settings** menu is displayed. Highlight **Programming OK** and press the Enter key. The **Programs** menu is displayed.

If using the *continuous* method, the program is automatically started if the trigger criteria are met (i.e. the program is not started by going to Program → Start), so there is no need to continue with step # 18. Up to 3 other SDI-12 trigger parameters can be configured by following steps # 1-17.

If using the *event* method, continue with step #18 below.



**18.** To run the program, highlight **Start** and press the Enter key.

**NOTE:** Ensure the instrument is calibrated before running any programs. Please see the [Pump Calibration](#) on page 17.

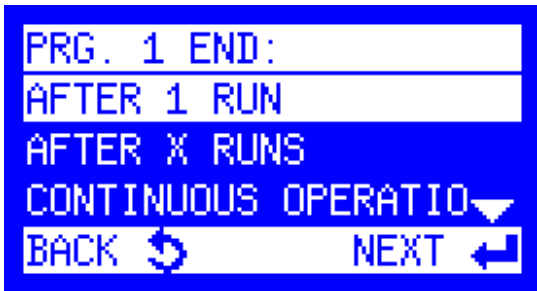


**19.** Use the arrows to select the program to run. Press the Enter key.



**20.** Choose when the program should start. Press the Enter key.

**NOTE:** Ensure the date and time of the unit is correct. See [Configure Key Instrument Settings](#) on page 22.



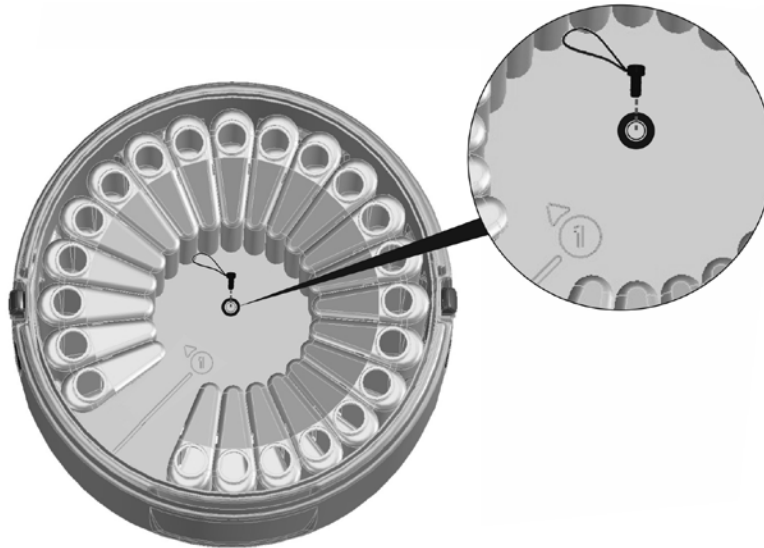
**21.** Choose when the program should end. Press the Enter key.

**22.** The program will start sampling once the Trigger criteria have been met.

# Maintenance and Cleaning

## Draining the Bottom Sampler Housing

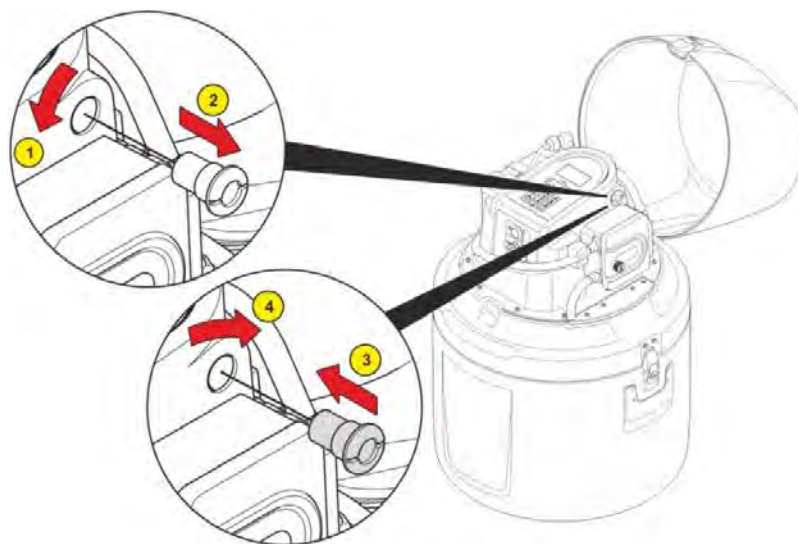
On the ProSample P and ProSample P-12, there is a drain plug in the center of the bottom sampler housing. This drain can be removed when cleaning the sampler housing, removing any spilled solution, or when draining any ice used to keep collected samples cold.



*Draining the ProSample P and ProSample P-12*

## Desiccant Replacement

A desiccant cartridge (40 % rel. humidity; item # 0060589) is located inside the ProSample controller to absorb moisture and prevent corrosion. Over time the desiccant will become saturated with moisture and should be replaced. Monitor the desiccant color through the clear plastic window. The color will change from blue to pink when the desiccant is saturated.



*Desiccant replacement*

# Peristaltic Pump Tube Replacement


Inspect and clean the pump tubing and rollers on a regular basis. Replace the pump tube (item # 0901062) when it has become dirty or worn out. Cleaning and/or replacing the pump tube may also prove helpful if the ProSample displays an error message during a program.

YSI does not have a recommended replacement interval for the peristaltic pump tube, as the lifetime of the tube varies based on application. As an example, if the sampler is used at the outlet of a plant, the sampling environment is likely relatively clean with little/no solids. However, if samples are collected at the inlet, the tube may have a very short lifetime due to the amount of solids in solution. YSI recommends always having a spare peristaltic pump tube available.

**NOTE:** *The inside of the pump tube can be cleaned with a sponge. Cut a 12x12 mm piece of sponge and go to **DIAGNOSTICS / TEST** → **COMPONENT TEST** → **PUMP**. You can choose to run the pump forward (suction) and backward (purging). Moisten the sponge, hold it to a tube end and let it “suck” through the tube. It works in both directions. Repeat until the hose is clean again.*

**NOTICE:** Use of tubing other than that supplied by the manufacturer may cause excessive wear on mechanical parts and/or poor pump performance.

There is an extra pump tube included with each ProSample unit. It can be found inside the ProSample lid. Please refer to [Installing the Peristaltic Pump Tube](#) on page 16 when replacing the peristaltic pump tube.

 **WARNING:** Do NOT attempt to replace the peristaltic pump tube or service the pump while the ProSample is ON. The moving components of the pump can cause serious injury.

## Cleaning

The ProSample should be kept clean, especially the parts exposed to the sample such as the dosing unit, water sensors, distributor, bottles and suction hose. Failure to do so could result in damage not covered by the warranty.

Clean the interior and exterior of the housing with a damp, lint-free cloth. Commercial household cleaner in water can be used if needed.

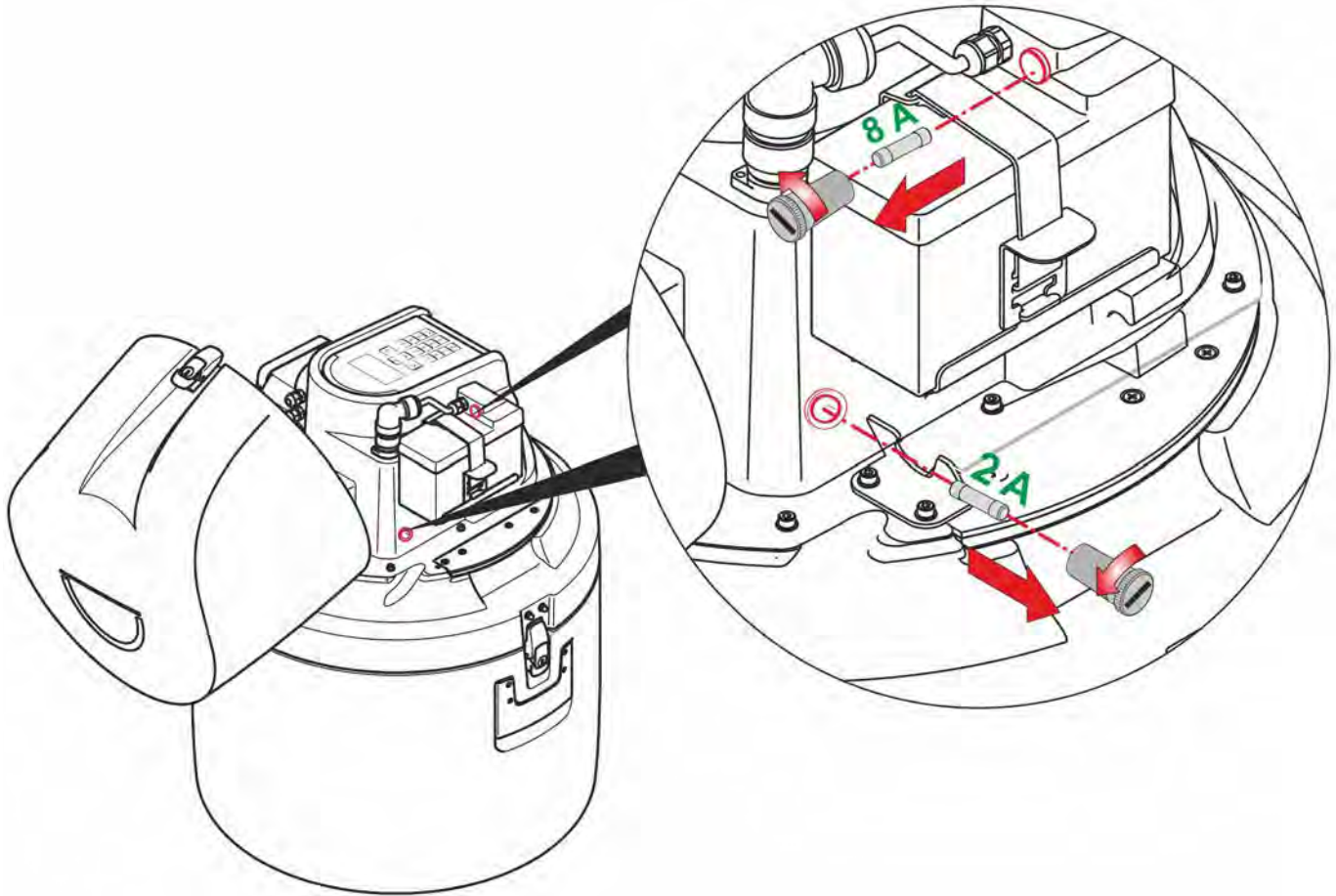
Clean the unit around the distributor arm as required.

**NOTICE:** Do not manually rotate the distributor arm, as it can cause permanent damage to the drive. If you need to move the arm, go to **Diagnostics/Test** → **Component Test** → **Distributor**. Enter the bottle position you would like the arm to move to.

In addition to the peristaltic pump tube, also ensure the suction hose, distributor tube, and the intermediate tube are clean. Replace if necessary.

## Changing the Fuse(s)

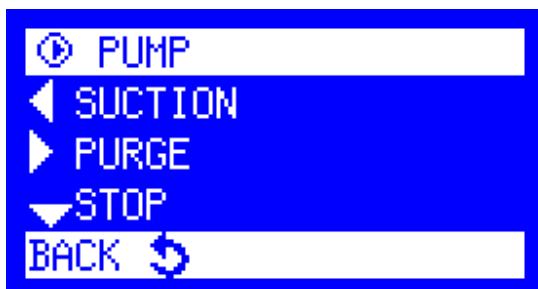
If the ProSample is not operating as expected, it may be necessary to change one of the two fuses installed in the ProSample - 8A and 2A. To remove the fuse, rotate as outlined in the picture below and pull out. Insert the replacement fuse and tighten.



Removal of ProSample fuses

## Long-Term Instrument Storage

To prepare the ProSample for long-term storage (e.g. over the winter):



1. Close all active programs.
2. Purge the peristaltic pump tube, intermediate tube, and suction hose. From the Main Menu, go to **Diagnostics/Test** → **Component Test** → **Pump**. Press the right arrow key to run the pump backwards for purging. Keep the button pressed until all tubes are empty.
3. Remove all liquids and, if necessary, solid matter from all tubes and bottle compartments. Clean as needed.
4. Remove the peristaltic pump tube.
5. Remove the battery.
6. Store all items in a cool, dry place.



# Factory Reset

A factory reset can reset all settings to the factory default. Please note that all setting and data will be deleted when completing a factory reset. To complete a factory reset:

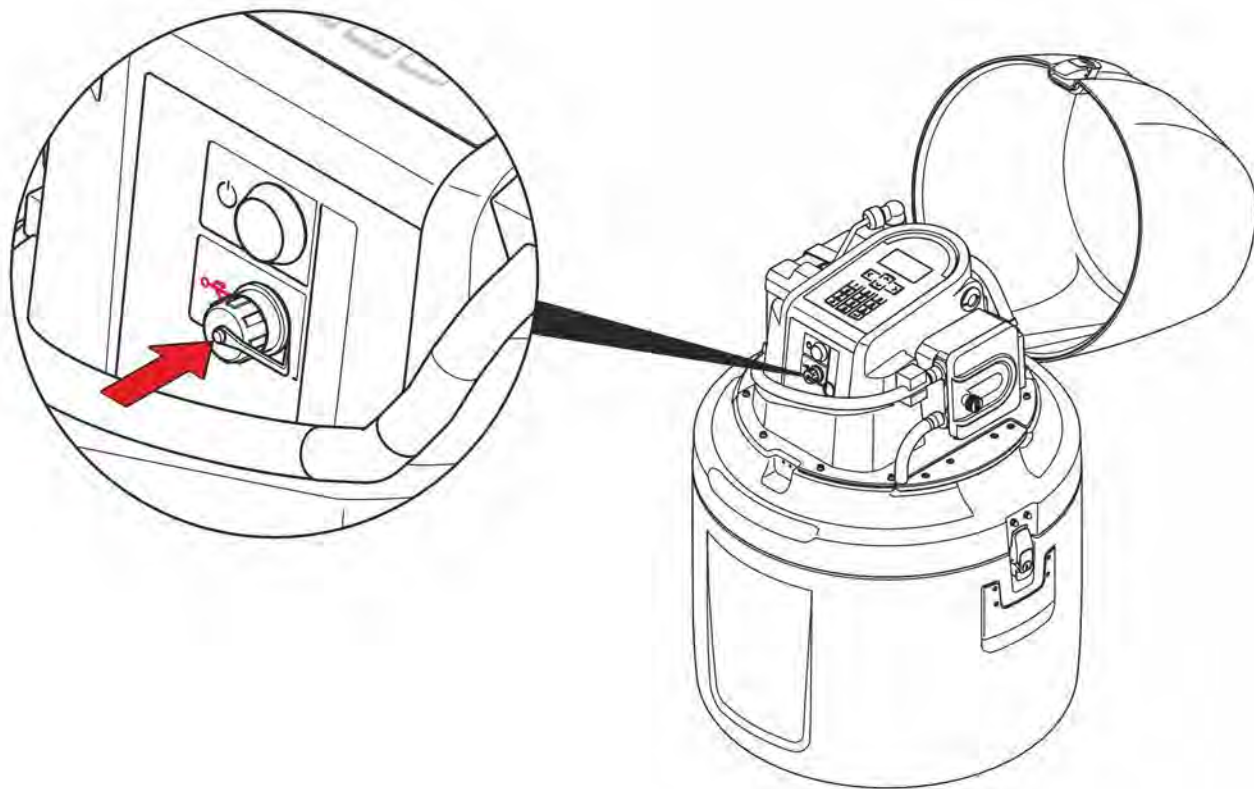
1. Turn OFF the ProSample.
2. Hold the power key and the Back key at the same time.
3. When the instrument beeps, release the power key but keep the Back key pressed.
4. Once the screen initializes and shows the "Load Factory Settings" page, release the Back key and allow the ProSample to boot.

# YSIConnect PC Software

YSIConnect is the PC software for the ProSample series of automatic samplers. This software can be used to:

- Control the sampler
- Download data
- Update instrument firmware

The sampler is connected to a PC with the USB cable included with each ProSample.



*USB port cover on the front of the ProSample*

# Replacement Parts and Accessories

## Ordering

Telephone: 800 897 4151 (USA)

+1 937 767 7241 (Globally) Monday through Friday, 8:00 AM to 5:00 ET

Fax: +1 937 767 9353 (orders)

Email: [info@ysi.com](mailto:info@ysi.com)

Mail: YSI Incorporated 1725 Brannum Lane Yellow Springs, OH 45387 USA

Internet: [ysi.com](http://ysi.com)

When placing an order please have the following available:

1. YSI account number (if available)
2. Name and phone number
3. Purchase Order or Credit Card number
4. Model Number or brief description
5. Billing and shipping addresses
6. Quantity

# Replacement Parts and Accessories

## ProSample Portable Automatic Samplers

| YSI Item Number | Description   | Notes  |
|-----------------|---|--|
| 630141          | <b>ProSample P</b> portable sampler with plastic housing, peristaltic pump, microprocessor control, battery operated 12 V/7.5 Ah. Includes battery, two peristaltic pump tubes, USB cable, Getting Started Guide, and a 5 meter suction hose with screw connection and sinker weight.   | Battery charger not included, optional sample bottle sets with distributor arm sold separately |
| 630111          | <b>ProSample P-12</b> portable sampler with plastic housing, peristaltic pump, microprocessor control, battery operated 12 V/7.5 Ah, and SDI-12 connectivity. Includes battery, two peristaltic pump tubes, USB cable, Getting Started Guide, and a 5 meter suction hose with screw connection and sinker weight.   | Battery charger not included, optional sample bottle sets with distributor arm sold separately |
| 630140          | <b>ProSample PM</b> mini portable sampler with plastic housing, peristaltic pump, microprocessor control, battery operated 12 V/7.5 Ah. Includes 10 L PE composite sampling bottle with lid, battery, two peristaltic pump tubes, USB cable, Getting Started Guide, and a 5 meter suction hose with screw connection and sinker weight.                             | Battery charger not included   |
| 630110          | <b>ProSample PM-12</b> mini portable sampler with plastic housing, peristaltic pump, microprocessor control, battery operated 12 V/7.5 Ah, and SDI-12 connectivity. Includes 10 L PE composite sampling bottle with lid, battery, two peristaltic pump tubes, USB cable, Getting Started Guide, and a 5 meter suction hose with screw connection and sinker weight. | Battery charger not included   |

## Sample Bottles and Distributor Arm for ProSample P and ProSample P-12

| YSI Item Number | Description   | Used With                                      |
|-----------------|---|--|
| 630134          | Set of (24) 1 L bottles (PE) with lids  | ProSample P and ProSample P-12                 |
| 630135          | Set of (8) 2 L bottles (PE) with lids and fixing plate  | ProSample P and ProSample P-12                 |
| 630136          | Set of (4) 4 L bottles (PE) with lids and fixing plate  | ProSample P and ProSample P-12                 |
| 630152          | Set of (24) 350 mL bottles (glass) with lids and fixing plate   | ProSample P and ProSample P-12                 |
| 630142          | Set of (12) 1 L bottles (glass) with lids and fixing plate  | ProSample P and ProSample P-12                 |
| 630143          | Set of (8) 2 L bottles (glass) with lids and fixing plate   | ProSample P and ProSample P-12                 |
| 630118          | 26 L (PE) composite bottle with lid   | ProSample P and ProSample P-12                 |
| 630112          | Distributor arm for 24 x 1 L PE, 8 x 2 L glass, 12 x 950 mL glass, 24 x 350 mL glass; distributor tube (0901064) is pre-installed | Bottle sets 630134, 630143, 630142, and 630152 |
| 630113          | Distributor arm for 4 x 4 L PE and 8 x 2 L PE; distributor tube (0901064) is pre-installed  | Bottle sets 630135 and 630136                  |

# Replacement Parts and Accessories

## Flow Signal and SDI-12 Cables

| YSI Item Number | Description   | Used With                          |
|-----------------|---|------------------------------------|
| 630147          | 10 meter flow signal cable with open cable end for wiring to a digital or analog device, as well as non-SDI-12 event connections (i.e. a relay) | All ProSample models               |
| 630146          | 10 meter SDI-12 cable with open cable end for wiring to an SDI-12 device (e.g. EXO1 and EXO2 with signal output adapter)                        | ProSample P-12 and ProSample PM-12 |
| 630145-02       | 2 meter SDI-12 cable with 6-pin female wet-mate connector for direct connection to YSI EXO3 sonde   | ProSample P-12 and ProSample PM-12 |
| 630145-04       | 4 meter SDI-12 cable with 6-pin female wet-mate connector for direct connection to YSI EXO3 sonde   | ProSample P-12 and ProSample PM-12 |
| 630145-10       | 10 meter SDI-12 cable with 6-pin female wet-mate connector for direct connection to YSI EXO3 sonde  | ProSample P-12 and ProSample PM-12 |
| 630145-15       | 15 meter SDI-12 cable with 6-pin female wet-mate connector for direct connection to YSI EXO3 sonde  | ProSample P-12 and ProSample PM-12 |
| 630145-33       | 33 meter SDI-12 cable with 6-pin female wet-mate connector for direct connection to YSI EXO3 sonde  | ProSample P-12 and ProSample PM-12 |

## Battery Chargers

| YSI Item Number | Description  | Used With                  |
|-----------------|--|----------------------------|
| 630137          | Battery charger, IP-67 (waterproof) rated, for US customers, CEC compliant                                   | All ProSample models       |
| 630122          | Battery charger, IP-67 (waterproof) rated, for non-US customers, does not include international adapters     | All ProSample models       |
| 630144          | Battery charger, not IP-67 (waterproof) rated, for non-US customers, does not include international adapters | All ProSample models       |
| 630153          | International adapter kit  | 630122 and 630144 chargers |

# Replacement Parts and Accessories

## Accessories

| YSI Item Number | Description   | Used With                                     | Notes   |
|-----------------|---|---|---|
| 0030051         | Strainer 8 x 8 mm   | All ProSample models                          |   |
| 0901025         | Strainer 2 x 2 mm   | All ProSample models                          |   |
| 0069810         | Y-Cable for continuous connection of the ProSample battery to AC power. Only recommended if AC power source near location of ProSample. This allows the battery to receive continuous charge. | All ProSample models                          | Only recommended if there is an AC power source near the location of the ProSample. This allows the ProSample to always be connected to AC power. |
| 0901074         | Lockable latches - Qty of 3   | All ProSample models                          | One lock per latch  |
| 0901072         | Suspension harness for ProSample PM and ProSample PM-12   | ProSample PM and ProSample PM-12              |   |
| 0901073         | Suspension harness for ProSample P and ProSample P-12   | ProSample P and ProSample P-12                |   |
| 0900045         | Suspension Bar for harness  | All ProSample models and suspension harnesses | Ideal for use in sewers   |
| 0901097         | Transport Trolley   | ProSample P and ProSample P-12                |   |

## Replacement Parts

| YSI Item Number | Description   | Used With                          | Notes                                  |
|-----------------|---|------------------------------------|--|
| 630132-05       | 5 meter suction hose with screw connection and sinker weight  | All ProSample models               | Included with all ProSample models     |
| 630132-10       | 10 meter suction hose with screw connection and sinker weight | All ProSample models               |  |
| 630132-20       | 20 meter suction hose with screw connection and sinker weight | All ProSample models               |  |
| 630125          | SDI-12 connector to ProSample, no cable included              | ProSample P-12 and ProSample PM-12 | Same as 630146 but without the cable   |
| 0050598         | Stainless steel sinker weight, length 180 mm                  | All ProSample models               | Pre-installed in all YSI suction hoses |
| 0069793         | USB cable - USB2.0 to USB Mini                                | All ProSample models               | Included with all ProSample models     |

# Replacement Parts and Accessories

## Replacement Parts

| YSI Item Number | Description   | Used With            | Notes  |
|-----------------|---|----------------------|--|
| 0901055         | Battery pack, 7.5 Ah with connection cable and fuse holder  | All ProSample models | Included with all ProSample models   |
| 0060589         | Desiccant cartridge   | All ProSample models | Replace the desiccant cartridge installed inside the ProSample controller when it changes from blue to pink.   |
| 630119          | Fuse T 8A 5x20  | All ProSample models | There are two fuses installed in the ProSample. Please refer to the Changing the Fuse(s) section on page 56 to ensure the correct replacement fuse is ordered. |
| 630120          | Fuse 2A   | All ProSample models | There are two fuses installed in the ProSample. Please refer to the Changing the Fuse(s) section on page 56 to ensure the correct replacement fuse is ordered. |
| 0901101         | Battery retaining band  | All ProSample models | Replacement for the retaining band already installed on all ProSample units.   |
| 0901062         | Peristaltic pump tube   | All ProSample models | An extra tube is supplied with each ProSample. Replace the pump tube when it has become dirty or worn out.   |
| 0901063         | Intermediate tube; does not include the 630126 adapter that allows connection of the suction hose | All ProSample models | This tube is located between the sensors on the peristaltic pump.  |

# Replacement Parts and Accessories

## Replacement Parts

| YSI Item Number | Description  | Used With            | Notes   |
|-----------------|--|----------------------|---|
| 0901064         | Distributor tube   | All ProSample models | Pre-installed in the 630112 and 630113 distributor arms; connects to the peristaltic pump; for the ProSample PM and ProSample PM-12, this tube can be used as a replacement composite tube, although the user may want to cut it to the appropriate length. |
| 630126          | Adapter, male 3/4 inch-14BSPP to barbed 10 mm ID; this adapter is installed at the end of intermediate tube and allows for connection of the intermediate tube to the suction hose     | All ProSample models | This adapter is pre-installed in the intermediate tube included with each ProSample unit but it is NOT included with the replacement intermediate tube (0901063).   |
| 630127          | Adapter, female 3/4 inch-14BSPP to barbed 3/8 inch ID; this adapter is installed at the end of the suction hose and allows for connection of the suction hose to the intermediate tube | All ProSample models | This adapter is pre-installed in each suction hose. This adapter is helpful if the adapter on the suction hose breaks or if using a suction hose that is not sold by YSI.   |
| 0050695-VA      | Tube connector V2A (stainless steel); 1 piece  | All ProSample models | There are two tube connectors located on the outside of the pump housing. ProSample units ship with the V2A connectors.   |
| 0050695-PTFE    | Tube connector PTFE; 1 piece   | All ProSample models | There are two tube connectors located on the outside of the pump housing. ProSample units ship with the V2A connectors.   |



# Replacement Parts and Accessories

## Replacement Parts

| YSI Item Number | Description                                 |
|-----------------|---|
| 0060584         | Replacement bottle, 1 L, PE                 |
| 630150          | Replacement cap for 1 L bottle              |
| 0060636         | Replacement bottle, 2 L, PE                 |
| 0060634         | Replacement bottle, 4 L, PE                 |
| 0030052         | Replacement bottle, 350 mL, Glass           |
| 0060628         | Replacement cap for 350 mL bottle, PE white |
| 0030054         | Replacement bottle, 950 mL, Glass           |
| 0060640         | Replacement cap for 950 mL bottle, PE white |
| 0030013         | Replacement bottle for 2 L, Glass           |
| 0060161         | Replacement cap for 2 L, PE white           |
| 630151          | Replacement 10 L (PE) bottle with lid       |

# Warranty and Liability

The manufacturer warrants that the product supplied is free of material and manufacturing defects and undertakes the obligation to repair or replace any defective parts at zero cost.

The warranty period is 12 months from shipment date. Consumables and damage caused by improper handling, poor installation or incorrect use are excluded from this warranty.

With the exclusion of the further claims, the supplier is liable for defects including the lack of assured properties as follows: all those parts that, within the warranty period calculated from the day of the transfer of risk, can be demonstrated to have become unusable or that can only be used with significant limitations due to a situation present prior to the transfer of risk, in particular due to incorrect design, poor materials or inadequate finish will be improved or replaced, at the supplier's discretion. The identification of such defects must be notified to the supplier in writing without delay, however at the latest 7 days after the identification of the fault. If the customer fails to notify the supplier, the product is considered approved despite the defect. Further liability for any direct or indirect damages is not accepted.

If instrument-specific maintenance and servicing work defined by the supplier is to be performed within the warranty period by the customer (maintenance) or by the supplier (servicing) and these requirements are not met, claims for damages due to the failure to comply with the requirements are rendered void.

Any further claims, in particular claims for consequential damages cannot be made.

Consumables and damage caused by improper handling, poor installation or incorrect use are excluded from this warranty.

# Technical Support

Telephone: 800 897 4151 (USA)  
+1 937 767 2762 (Globally)  
Monday through Friday, 8 AM to 5 PM ET  
Email: [info@ysi.com](mailto:info@ysi.com)

# Service Information

When returning the ProSample for service, include the YSI Product Return Form with cleaning certification. The form must be completely filled out for the YSI Service Center to accept the instrument for service. The form may be downloaded from [YSI.com](http://YSI.com).

**NOTE:** When sending a ProSample to YSI for service, it is recommended to include the battery.

# Appendix A: ProSample Menu Tree

| <b>PROGRAMS</b>      |                 |   |
|----------------------|-----------------|---|
| Status / Stop        | Info            | Display of program details  |
|                      | Pause           | Interruption of the running program (max. 120 min)  |
|                      | Stop            | Stop the current program or all programs  |
| Start                | Immediately     | Start program immediately   |
|                      | Date / Time     | Start program with date / time (dd:mm:yyyy hh:mm)   |
|                      | Weekday / Time  | Start program with weekday / time (day; hh:mm)  |
| Change               | Program No [xx] | Change operating modes: <ul style="list-style-type: none"> <li>• TIME</li> <li>• FLOW DIGITAL</li> <li>• FLOW ANALOG</li> <li>• EVENT TIME</li> <li>• EVENT DIGITAL</li> <li>• EVENT ANALOG</li> <li>• VARIABLE TIME</li> <li>• BATCH SAMPLING</li> </ul> |
| <b>MANUAL SAMPLE</b> |                 |   |
| In Present Bottle    |                 | Sample extraction into PRESENT bottle   |
| Into Bottle X        |                 | Sample extraction into selectable bottle X  |
| <b>DATA MEMORY</b>   |                 |   |
| Sampling Data        |                 | Log of sampler data (e.g. bottle changes and limit values)  |
| Temperature Data     |                 | Temp. sampling compartment. Temp. Ambient, PT1000 Temp.   |
| Bottle Protocol      |                 | Data of each bottle (e.g. requested/taken samples)  |
| Bottle Archive       |                 | Archive of the last 50 Bottle Protocols for the last 50 program cycles  |

# Appendix A: ProSample Menu Tree

| DIAGNOSTICS / TEST |                   |   |
|--------------------|-------------------|---|
| Component Test     | Pump              | Perform a functional check of components  |
|                    | Distributor       |   |
|                    | Digital Outputs   |   |
| Digital Inputs     |                   | Display of<br>(DI - digital input):<br>Flow digital: 0    Event: 0<br>DI3   DI4   DI5<br>DI6   DI7   DI8  |
| Analog Inputs      |                   | Display of: <ul style="list-style-type: none"> <li>• Analog 1</li> <li>• Water Sensor 1</li> <li>• Water Sensor 2</li> <li>• PT 1000 Sensor (Option)</li> <li>• Operating Voltage</li> <li>• Analog 2</li> <li>• Flow: xxxx l/s (m3/h)</li> </ul> |
| Version Info       |                   | Display of: <ul style="list-style-type: none"> <li>• Firmware version</li> <li>• Serial No. PLC</li> </ul>  |
| SETUP              |                   |   |
| Date / Time        |                   | Settings of date / time   |
| System Settings    | Trigger Channel   | Configure analog and SDI-12 input channels  |
|                    | Language          | Setting of the language.<br>Default is English.   |
|                    | Distributor       | Selection of the distributor type.<br>Default is single bottle.   |
|                    | Max. Suction Time | Setting of the maximum suction time (0-600 sec.).<br>Default is 60 seconds.   |
|                    | Pre purge         | Pre purge = purge of suction hose PRIOR to the sample extraction (0-99.99 sec.). Default is 5 seconds.  |
|                    | Post purge        | Post purge = purge of the suction hose AFTER the sample extraction (0-99.99 sec.). Default is 5 seconds.  |

# Appendix A: ProSample Menu Tree

|                                |                       |  |
|--------------------------------|-----------------------|--|
| System Settings<br>(continued) | Rinse Before Sampling | Option to rinse intake line with source liquid prior to each sample, up to 3 rinses. Default is no rinses.   |
|                                | Calibration Vol       | Volume calibration for Peristaltic Pump  |
|                                | Log Entries           | Set of the Log entries. Log interval for Temp. board and PT1000 can be adjusted 1-60 min   |
|                                | Internal Temperature  | <ul style="list-style-type: none"> <li>• Via NTC</li> <li>• Via PT1000</li> <li>• Limit value (1-20°C)</li> <li>• Delay time (1-60 min.)</li> </ul> (Example: limit value 7°C, delay time 10 min. An alarm message is sent if the limit value is exceeded for 10 min.)                     |
|                                | Fault Signal          | Possibility to invert the output   |
|                                | Analog Signal         | Selection: <ul style="list-style-type: none"> <li>• 0-20 mA</li> <li>• 4-20 mA</li> </ul> Calibration (adjustment with the signal of plant)  |
|                                | Display               | <ul style="list-style-type: none"> <li>• Always switched on</li> <li>• Switch off after certain time (0-999 sec.)</li> <li>• Contrast</li> <li>• Max. brightness</li> <li>• Min. brightness</li> </ul>   |
|                                | Status LED            | Enable or disable the LED indicator on the front of the ProSample.   |
|                                | Pause Duration        | Program can be interrupted for 10-120 min. for example for cleaning. After expiry of the time entered the program is automatically resumed.  |
|                                | Prog. Inputs          | Programmable inputs: input signal to start a program e.g. via an external pulse. Four inputs are available.  |
|                                | Min. Sample Volume    | Setting of the min. sample volume which shall be taken. Default is 1 mL.   |
|                                | Max. Sample Volume    | Setting of the max. sample volume which shall be taken. Default is 250 mL.   |
| Sleep Mode                     | Active                | If the sleep mode has been activated and the program is to be started in 20 min. at the earliest, the message "Attention device switches to sleep mode" is displayed for 30 sec.<br><br>Thereafter the display is switched off and only activated again 2 min. prior to the program start. |
|                                | Inactive              | Sleep mode is deactivated  |

# Appendix A: ProSample Menu Tree

|          |                 |  |
|----------|-----------------|--|
| Password | Change Password | In general the password can be changed   |
|          | Change Settings | A password for settings can be entered   |
|          | Change Programs | A password for changing programs can be entered  |
|          | Stop Programs   | A password for stopping programs can be entered  |
| Service  |                 | Setting of base parameters (only to be done by a service technician)<br>(Password protected) |

|   |   |   |
|---|---|---|
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Item# 630123REF  
Revision A  
June, 2018