SciLog®

The Smart Pump Company

Start-up: "Automated Weighing and Dilution of Food Samples for Bacteriological Analysis"

Equipment: You will need the following items to get started:

SciLog P/N	*Description*	*Quantity*
400-480 or 490	10 or 20 liter ADS Carboy	1 pc
100-1682	LabTec CP-200 w/1082 Head	1 pc
100-2100B	Ohaus Balance	1 pc
080-066	Scilog Balance interface cable	1 pc
080-059	Foot Switch	1 pc
400-420	Stand and Clamps	1 set
400-124	Silicone #24 Tubing "MasterFlex"	25 ft (1 pkg)
400-491A	Dispensing Tips	1 pkg
Or		
400-450	Sartobran 300 Filter & Bell (needs a larger clamp)	1 pkg
400-478	Bag Holder	1 pc
400-477	Stomacher Bags	1 pkg

Hardware Setup:

1. Unpack all the components, visually identify and inspect for damage.
2. At the dispensing station, place the ADS carboy (ADS = Automated Dispensing Station) to the far left, the LabTec to its right and the balance with the stand and clamps to the right of the LabTec. Place the bag holder on the balance.
3. Connect the footswitch to the rear of the LabTec, secure the screws, and place the footswitch in a convenient location on the lab counter or floor.
4. Connect the interface cable between the LabTec and the balance paying close attention to the labels on the cable and those on the rear of the LabTec. (The cable may ship attached to the balance already, and if so, simply attach it to the LabTec.)
5. Plug in and power up both units.
6. Cut approximately 10 feet of the #24 tubing and install the dispensing tip or filter on one end. Mount that end of the tubing in the clamp stand and position it so that it is just above the bag holder. Fasten the tubing to the upright of the clamp stand with a cable tie or twist tie to stabilize it and route it clear of the balance.
7. Route the tubing to the LabTec, open the head by rotating the lever 180 degrees counter clockwise, and place the tubing over the upper set of rollers. Confirm that the tubing is under the centering springs and close the head by rotating the lever back to its original position.
8. Route the remaining tubing to the ADS carboy and attach it to the appropriate connector.

Software/Program Setup:

1. For Weight Ratio applications such as this one, the only thing that must be setup prior to editing and running the program is the scale (or balance) that is in use. If you purchased the balance from Scilog, this has already been done.

2. Refer to Section 7.10, and in particular 7.123 for the Ohaus balance listed above, and follow the listed procedures to configure the balance itself.

3. On the front panel of the LabTec, press the "Exit" key until you reach the main or "Mode Select" menu.

4. Press the "Up" or "Down" key until you reach the "Setup" mode.

Mode Select SETUP		
Up	Down	Select
A	B	C

5. Press "C" to select the Setup mode, and "A" as needed to move up to "Scale". Then press "C" to select "Scale" and again to select "Scale Manuf.".

-SELECT- SCALE MANUF.		
Up	Down	Select
A	B	C

6. Use "A" or "B" to move up or down thru the list, and when "OHAUS" is shown, press "C" to select it. Then press the "Exit" key until you return again to the main or "Mode Selct" menu and you are ready to proceed to editing and running a program.

SCALE MANUF: OHAUS		
Up	Down	Select
A	B	C

Program Editing and Execution:

1. From the main menu, press "Up" or "Down" to scroll between the modes until you reach "WT RATIO", and "Select" it.

2. From this screen, you can now "Prime" the system with fluid, or enter either an "Exec" (Execute) or "Edit" mode. The LabTec will allow you to Edit, store and Execute ten different sets of dilution parameters depending on your needs.

- WEIGHT RATIO -		
Up	Down	Select
A	B	C

3. At this point, you need to consider the parameters of the dispensing that you are going to do. The following is a list of the various parameters available, and their defaults. We strongly suggest that you use #24 Silicone MasterFlex tubing and these defaults initially, and then optimize your system after a review of your results during the first few days of

operation. Consult Section 2.0, Pages B4 & B5 of the LabTec Manual to edit your weight ratio dispensing parameters.

WGT FACTOR: Defines the weight ratio (multiplier) that is applied to the actual sample weight, as determined by the balance, to arrive at the required diluent's weight. **WGT FACTOR = 9.00** is the default, and will yield a 10-fold dilution. You may increase or decrease this to any ratio you desire. Select a **WGT FACTOR = 99.00** if you want a 100-fold dilution.

SNIFFLE: The sniffle function consists of a brief pump reversal at the end of the dispensing cycle to suck in the droplet that typically hangs at the end of the dispensing tip. It also will relieve the pressure on a filter if you are using one so that it does not drip. Select **SNIFFLE = 0.3.** (The default is 0.0)

SLOW FACTOR: Defines the diluent weight that is dispensed slowly at the end of the dispensing cycle. The default **SLOW FACTOR** = **25.0** grams. This may be adjusted if necessary.

PUMP DIRECTION: Defines the rotation of the pump head, this parameter can be changed from clock-wise (CW) to counter clock-wise (CCW). (Default = **CW**)

PUMP RATE: Defines the relative pup speed (0% to 100%) with which the diluent is being dispensed. The default **PUMP RATE = 80%**. This may be adjusted as needed, higher speeds are not recommended.

TIME DELAY: Not used in Weight Ratio Dispensing mode. Defines the time interval, in seconds, between dispensing cycles. (Default = **00.01**)

COUNT: Not used in Weight Ratio Dispensing mode. Defines how often the dispensing cycle will be repeated. For example, when COUNT = 10, then the selected DISP. WEIGHT will be dispensed 10 times. (Default = **1**)

4. Press **"Exec"** key, select **"Exec 1",** the LabTec will show the following display:

SCALE INITIALZATION **Please Wait**

While the message is being displayed, the LabTec checks the balance communications parameters and the following display is shown:

WGT RATIO SET: 9.00 **Press RUN When Ready**

Press the **"RUN"** key or alternatively press the foot switch:

Press RUN When **VESSEL IS ON BALANCE**

Place the sample bag or container onto the balance and underneath the dispensing tip. Press **"RUN"** key or the foot switch . The LabTec will show the following display:

REMOVING TARE WEIGHT **Please Wait**

This display is followed by:

Press RUN When SAMPLE IS IN VESSEL

Place your sample into the sample bag or container, only an approximate sample weight is needed. The weight ratio will be applied to the actual sample weight as determined by the balance. Press **"RUN"** key or the foot switch, the LabTec will start dispensing and display the progress:

SW: 10.00 G	RUN
DW: 50.00 G	ID 001

SW stands for the actual **sample weight** and **DW** represents the delivered **diluent weight**. When the dispensing cycle is completed, following displays are shown.

SW: 10.00 G	FINISH
DW: 90.00 G	ID 001

DISPENSING Completed

WGT RATIO SET: 9.00 Press RUN When Ready

Remove your filled sample bag or container and initiate the second dispensing cycle.

NOTE: If you have more than one WGT FACTOR, store one WGT FACTOR in "Edit 1", e.g. "9.00", while a second WGT FACTOR is stored in "Edit 2", e.g. "99.00". Up to ten different sets of parameters can be stored in "Edit 1" through "Edit 10"

CAUTION: The following may affect your accuracy, and should be considered:

1) SciLog suggests you use #24 tubing, and move the portion inside the pump 3-4 inches toward the discharge side of the pump periodically to avoid wearing it out. As the tubing becomes worn, your dilutions may take longer, and you may get debris in the diluent. #35 tubing will cause target weight overruns, and is considered to be too large for this application.
2) Sniffle Factor. This is a parameter that can be adjusted to minimize the drips that occur after the dilution, thereby eliminating overruns. These procedures suggest an initial factor of 0.3. If you are using a filter, this may need to be increased as the filter becomes plugged.
3) Slow Factor and Pump Rate. These parameters can be optimized further depending upon your specific application. Increasing the Slow Factor will help if your scale response time is long, and decreasing the Pump Rate will help if the default of 80% is causing too much backsplash that can't be eliminated in some other manner.

SciLog recommends a factory cleaning, testing and recalibration be done to your Smart Pump at least once a year, to maintain the accuracy of the unit and reduce your downtime. SciLog also has loaner units available you can rent if you need to keep production running while SciLog is performing maintenance on your pump. Call us at 800-955-1993 for an RGA and arrange for a loaner if needed. If you have a large number of units, call us, and we can design a preventative maintenance program specifically for your company.