SciLog®

The Smart Pump Company

Start-up: "Dispensing Methadone by Volume using a LabTec"

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

SciLog P/N	*Description*	*Quantity*
100-542METH	LabTec FM520 Methadone Dispenser	1 pc
080-073	RS232 Cable to Interface Smart pump to PC	1 pc
400-001	Stainless Steel Sinker	1 pc
400-216	Tygon size #16 Tubing	50 ft (1 pkg)
400-420	Stand and Clamps	1 set
400-492	Dispensing Tips, 5/pkg.	1 pkg
	Appropriate Methadone Reservoir	1 pc

Hardware Setup:

1. Unpack all the components, visually identify and inspect for damage.

2. At the dispensing station, place the Methadone reservoir to the far left, the LabTec to its right and the stand and clamps to the right of the LabTec. Position the dispensing tip over the appropriately sized container.

3. Connect the LabTec to the PC using the RS232 Interface Cable (p/n 080-073). Plug the 9 pin female end marked "PC" to the com port on the rear of the PC, and the 9 pin male end to the port on the rear of the LabTec marked "Printer".

4. Plug in and power up the LabTec.

5. Cut 2 pieces of the #16 Tygon tubing each 3-4 feet in length. One should be long enough to reach from the bottom of your Methadone reservoir to the pump, and the other from the pump to your dispensing stand without stretching or kinking.

6. Install the Sinker on the end of the tubing that goes in the Methadone bottle so that it is held at the bottom of the bottle. Insert the other end in the port on the pump head that is low on the left side all the way to the bottom of the port and tighten the nut.

7. Install the dispensing tip on one end of the other piece of tubing. Mount that end of the tubing in the clamp stand and position it so that it is just above the container. Fasten the tubing to the upright of the clamp stand with a cable tie or twist tie to stabilize it. Insert the other end of the tubing in the port on the pump head that is high on the right side. As above, insert it all the way to the bottom of the port and tighten the nut.

8. The unit will now communicate with your Treatment Program Software on the computer, and you should use their priming procedures to prime the unit with distilled water and be sure there are no leaks.

Program Editing and Execution:

Prior to shipment, each LabTec unit is factory calibrated utilizing a high-precision balance with a readability of 0.01 grams. A performance validation data sheet is enclosed with every LabTec unit. This performance validation data sheet summarizes the calibration data at 10.00 ml as well as the pump accuracy and reproducibility at 20.00 ml, 5.00 ml and at 2.00 ml.

1. When you first turn the unit on, it should power up in Serial Mode, and display the following:

SERIAL CW 160.0ml/m DOSE=106ml TIME=05s		
A	**B**	**C**

2. If instead the following screen is seen, press the "C" button to Select, and the "A" button to Execute the Serial Mode, and the display will change to that shown above.

Mode Selct Up	Down	SERIAL Select
A	**B**	**C**

↓

- SERIAL - Exec	Edit	Exit
A	**B**	**C**

Once the display shown in #1 above is shown on the unit, you are ready to use the priming, dispensing, maintenance and calibration procedures as outlined by the Treatment Program Software or your individual clinic. This is not meant to replace those procedures.

Pump Head Cleaning and Maintenance:

Cleaning the Pump Head: Flushing the pump head with distilled water before shutdown will suffice for most Methadone Clinics. Alternatively, you can also use a 50:50 mixture of distilled water and isopropyl alcohol (IPA) or an Alconox solution for cleaning purposes. Please be sure the Alconox is thoroughly dissolved before flushing the pump. Steam-distilled water can be purchased in larger food stores.

For cleaning purposes, you must pump the cleaning solution through the pump for 3-4 minutes and until the cleaning solution appears clear at the discharge port of the pump. If using Alconox or alcohol, a final 1-2 minute flush with distilled water is needed. Stop the pump and leave the distilled water in your pump head. Please do not leave Alconox in the pump head overnight. Do not remove the tubing from the distilled water until you are ready to prime the pump with Methadone the following day**. Do not leave Methadone in the pump head overnight. Preventive maintenance is very valuable and ensures a long operational pump life.**

NOTE: Never use tap water for flushing, the water "hardness" associated with most tap water supplies will cause the pump head to "freeze", i.e. the pump head becomes inoperable. If the LabTec unit is not used frequently or is to be stored for an extended period of time, use the cleaning procedure outlined above then fill a 12" piece of tubing with cleaning solution, connect the tubing between the pump inlet and outlet. Turn the pump on for a brief period to ensure the

pump head is filled with cleaning solution. This simple procedure prevents the pump head from drying out and thus remains operable for a long time.

SciLog has implemented a LabTec re-furbishing and loaner program. Send in your LabTec Methadone Dispenser to SciLog for pump head cleaning and seal replacement at least once a year to maintain its performance. The service also includes functional testing and calibration, as well as a written performance validation. The typical turn-around time for LabTec repairs is 2-5 days. You can rent a LabTec loaner from SciLog while your unit is being repaired. Contact SciLog at 1-800-955-1993 for shipping instructions and /or a Fax-Back Form for the program.

Calibration:

Prior to shipment, each LabTec unit is factory calibrated utilizing a high-precision balance with a readability of 0.01 grams. A performance validation data sheet is enclosed with every LabTec unit. This performance validation data sheet summarizes the calibration data at 10.00 ml. as well as the pump accuracy and reproducibility at 20.00 ml., 5.00 ml. and at 2.00 ml. Five measurements are made for each volume setting. The Average Dispensed Volume, the Standard Deviation (SD) as well as the Relative Standard Deviation (RSD) are calculated and are included in the Performance Validation data sheet. The Performance Validation Data shown below should be used as a "Bench Mark" in assessing the quality of your calibration data. For your calibrations use the following procedure:

1. Dispense five 10.00 ml. aliquots, weigh each aliquot (10.00 ml. of water weighs 10.00 gr.) on a balance, determine the average weight for the five aliquots. (Add up the five aliquot weights and divide the sum by five, this is you average aliquot weight.)

2. If the average aliquot weight is either larger than 10.05 gr. or smaller than 9.95 gr., you adjust the black, knurled Adjustment Ring by turning it *clockwise* to decrease the pump output. Alternatively, you turn the black, knurled Adjustment Ring *counter- clockwise* to increase the pump output.

3. For example, if your average aliquot weight is 9.80 gr., your accuracy is off by 0.20 gr. or 2%. Therefore, you must turn the black, knurled Adjustment Ring counter-clockwise from 200 to 204 to increase the pump output by 2%.

   On the other hand, if your average weight is 10.50 gr. your accuracy is off by 0.5 gr. or 5%. Thus, you must turn the black, knurled Adjustment Ring clockwise from 200 to 190 to decrease the pump output by 5%.

4. After you have modified the Adjustment Ring position, dispense at least three 10-ml aliquots to check the improved dispensing accuracy. If necessary, repeat the procedure outlined in step 3 until your results are within the 9.95 gr. to 10.05 gr. range.

5. **Y-Intercept Adjustment:** (The following applies only to LabTec software V1.38AMS or higher). After you have completed the calibration at 10.00 ml., dispense three (3) aliquots of 2.00 ml. Calculate the average value for these three aliquots. If the average value is not 2.00 ml. +/- 0.03, you must adjust the Cal-Offset (see SETUP: Cal-Offset). Increase the Cal-Offset if the calculated average value is **below** 2.00 ml, decrease the Cal-Offset if the calculated average value is **above** 2.00 ml.

   For example, if the average value is too large by 10%, then decrease the Cal-Offset by 10%. If the average value is too small by 10%, then increase the Cal-Offset by 10%.

6. Without making any further adjustments, the LabTec is now ready for dispensing any volume from 20.00 ml. to 2.00 ml. with high precision and accuracy. The following represents typical performance data:

Dispensed Volume

	20ml	**10 ml(Cal)**	**5 ml**	**2 ml**
1.	20.04	10.01	5.00	1.98
2.	20.05	9.99	5.01	1.97
3.	20.05	10.02	4.99	1.97
4.	20.05	10.02	4.98	1.98
5.	20.03	10.01	4.99	1.99
Ave:	**20.04**	**10.01**	**4.99**	**1.98**
SD:	**0.01**	**0.01**	**0.01**	**0.01**
RSD:	**0.04%**	**0.12%**	**0.23%**	**0.42%**

7. **Calibration Tools:** For volumetric calibration of the pump, the use of an electronic top-loading balance is strongly recommended. Use a convenient container, tare the balance with the container, and then dispense your calibration aliquot (e.g 10.00 ml.). Weigh the container plus aliquot, obtaining the weight of the aliquot off the balance. Write down the weight of the aliquot, i.e. 10.05 grams. Repeat the measurement and determine the average aliquot weight.

   Caution: *Do <u>not</u> use a graduated cylinder for calibration. Significant accuracy and precision errors will be introduce if you attempt calibrate with a graduated cylinder.*