Bauer Core Standard protocol

Title: Dispensing into Plates with the Biotek μFill

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Author(s): Claire B. Reardon  Reviewers:
Contact: claire@cgr.harvard.edu  Comment:

1. Purpose

This protocol provides instructions for using the Biotek μFill to dispense liquid into microtiter plates (96 or 384 well plates, including deep well plates). The protocol is designed as a reference and is not a substitute for training. Users must complete a training session before using any Bauer Core instrumentation.

2. Materials

2.1. Microtiter plate (96 or 384 well, deep well plates may be used).
2.2. Liquid to dispense.

3. Instrumentation

3.1. Biotek μFill plate washer.

4. Reagent preparation

4.1. ddH₂O
4.2. 70% Isopropanol

5. Procedure

5.1. Setup

5.1.1. Optional: the manifold, syringe head, and tubing may all be autoclaved
5.1.1.1. remove the manifold by loosening the thumb screws.
5.1.1.2. remove the two mounting screws on the syringe head and pull back to remove the syringe head.
5.1.1.3. Loosen the setscrew and remove the piston.
5.1.1.4. **The piston and syringe head must be autoclaved separately.**
5.1.1.5. Autoclave all parts at 121°C and 115 kPa for 30 minutes.
5.1.1.6. Reassemble and reattach the syringe head, tubing and manifold.
5.1.2. Ensure that the plate carrier is positioned properly on the rails.
5.1.3. To fill standard-height plates, place the tall plate adapter onto the carrier. This adapter must be removed when filling deep-well plates
5.1.4. Place the priming plate onto the plate carrier or plate adapter. the smaller section should be towards the front of the instrument.
5.1.5. Connect the input tubing to the bottle containing the liquid to be dispensed.
5.1.6. Prime to fill the lines with liquid.
5.1.6.1. From the Main Menu, select Run then Prime.

5.1.6.2. Use the Options key to toggle between priming programs. “New_Buffer_Prime” or “P_Day_Rinse” are good programs. See section 5.2 for instructions on writing programs.

5.1.6.3. Hit “Enter” to select the program, then “Start to begin the prime.

5.2. Writing a Program.

5.2.1. The easiest way to write a program is to copy an exiting program. The copied program can then be edited as needed.

5.2.1.2. From the Main Menu hit Define.

5.2.1.3. Choose Copy.

5.2.1.4. Choose the type of program you wish to copy:
- Prime programs fill the lines with buffer.
- Dispense programs dispense liquid.
- Soak is a timed delay built into a linked series of dispenses.
- Link programs combine other dispense and/or soak programs.

5.2.1.5. Name your program.
- Use the Options key to toggle between letters.
- Use the keypad for numbers and the softkeys for punctuation.
- Hit enter when finished.

5.2.1.6. Hit Yes when asked “ok to copy?”

5.2.2. Edit the copied program.

5.2.2.1. From the Main Menu hit Define.

5.2.2.2. Choose Edit.

5.2.2.3. Choose the type of program you wish to edit.

5.2.3. Select the program to edit.
- Use the Options key to toggle and Enter to select.
- Use the Enter key to proceed from screen to screen.
- Change parameters as desired on each screen.

5.3 Running a Program

5.3.1. From the Main Menu press Run to start a program.

5.3.1.1. Select the type of program to run: prime, dispense, or link.

5.3.1.2. Select the program to run:
- Press the Options key to toggle between programs.
- See section 5.2 for instructions on writing programs

5.3.1.3. Press Enter to select the program then Start to begin the program

5.4. Clean up.

5.3.1. Prime with 70% isopropanol, water, and then air to clean out the lines.

5.3.2. Wipe up any spills and remove plates from the area.