Creighton UNIVERSITY

Using the Coulter Counter Model Z1

(Detailed Instructions)

Startup *(to be run at the beginning of each day)*

1) Turn on the power switch.
   - The S1 setup screen will be displayed on the data terminal LCD.
2) Check to make sure the upper and lower size limits and the count mode are appropriate. Generally:
   - T_u = 21 μm
   - T_l = 6 μm
   - Count Mode = Above T_l
3) Press "Set-Up"
   - The S2 setup screen will be displayed on the data terminal LCD.
4) Check to make sure that:
   - Select Aperture = 100 μm C
   - Metered Volume = 0.5
5) Remove the vial containing detergent from the aperture, replace it with a vial containing 20 ml of fresh isotonic saline, and move it into position.
6) Press the "Function" key.
   - The F1 function screen will be displayed on the data terminal LCD.
7) Using the cursor keys (← & →) move to "Prime Aperture"
8) Press the "Start / Stop" key to enter the priming routine.
9) Press the "Start / Stop" key again to begin priming the aperture.
   - The aperture will be primed with saline. This takes about 5 minutes.
10) Press "Output" to go to the output A1 page. The system is now ready to use.

Running Samples

1) Press the "Output" key until the Output A1 menu is displayed.
2) Under "Result Type" choose either:
   - Count ---------- output displays the # of events counted.
   - Concentration ----- output displays the # of cells/ml, based on the dilution factor entered.
3) If you choose concentration, then enter the appropriate dilution factor using the number keys in the "Dilution Factor" field.

Count the background …

4) Place a vial containing 10ml of fresh isotonic saline on the stage and move it into position.
5) Press the "Start / Stop" key to begin counting the background.
   - Background counts should be under 50 to continue.
   - If not, rinse the aperture and repeat steps 4 and 5.

Count your cell sample …

6) Place a vial containing 10ml of isotonic saline and your cells on the stage and move it into position.
7) Press the "Start / Stop" key to begin counting.
8) Record the counts or cells/ml displayed on the LCD
   - Generally, each sample should be counted twice and a mean value taken to insure accuracy.
9) For your next sample, place the new sample on the stage and repeat steps 6-8.

(continued on next page)

Rinse the aperture …

10) Place a vial containing 10ml of fresh isotonic saline on the stage.
11) Rinse the aperture by moving the stage up & down over the aperture several times.
12) Place a vial containing 10ml of fresh isotonic saline on the stage and move it into position.
13) Press the “Start / Stop” key to begin counting the background.
    - Background counts should be under 50 to continue.
    - If not, rinse the aperture and repeat steps 10-13.

Shutdown *(to be run at the end of each day)*

1) Place a vial containing detergent (*Coulter Clenz*) on the stage and move it into position.
2) Press the “Function” key.
    - The F1 function screen will be displayed on the data terminal LCD.
3) Using the cursor keys (← & →) move to “Prime Aperture”
4) Press the “Start / Stop” key to enter the priming routine.
5) Press the “Start / Stop” key again to begin priming the aperture.
    - The aperture will be primed with detergent. This takes about 5 minutes.
6) Turn off the power switch.