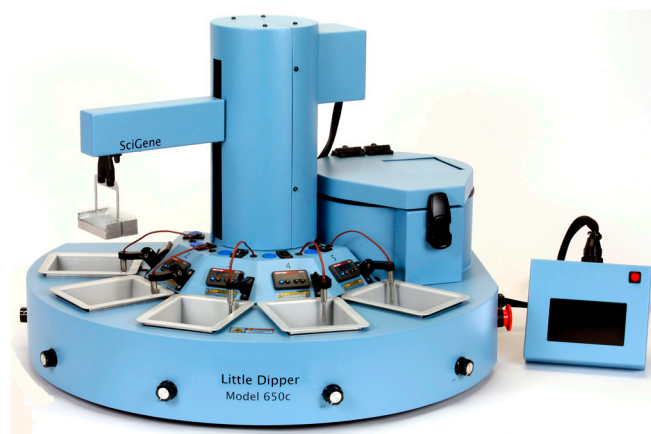


## Little Dipper<sup>®</sup> Processor for FISH USER MANUAL

CAT. #1080-70-1 (115V); 1080-70-2 (230V)



**FOR RESEARCH USE ONLY**

**Not for Use in Diagnostic Procedures**

**Serial Number**

The following serial number identifies the specific instrument you have purchased and must be referenced when requesting service. A copy is affixed to the instrument.

**Warranty**

The Little Dipper® Processor described in this manual is warranted to be free of defects in materials and workmanship for a period of 12 months from date of delivery. This warranty does not cover removable parts or accessories, including removable baths. In the event of a defect during the warranty period, liability is limited to factory repair service at no charge. All original packaging should be retained by the customer in the event that the instrument is returned to the factory for service or repair. The foregoing warranty is void in the event the unit was abused or modified or used in a manner inconsistent with its intended purpose. No other warranty is expressed or implied including warranties of merchantability and fitness for a particular purpose. In no event shall SciGene or its representatives be liable for any direct, indirect, special, incidental or consequential damages or for any damages resulting from loss arising out of or in connection with the sale, use or performance of the product.

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**Intended Use**

The intended use of this instrument is for washing and drying of fluorescent in situ hybridization (FISH) slides or microarrays. This instrument should only be used according to instructions provided in this User Manual and other SciGene technical documents. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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**I. SAFETY NOTICES**

**A. Instrument Safety**





Before operating the instrument, read the information in this section concerning hazards and potential hazards. Ensure that everyone involved with the instrument’s operation is instructed in both general safety practices for laboratories and specific safety practices for the instrument.

**B. Conventions and Labels**

The following is a glossary of the safety conventions and symbols that are used on the Little Dipper® Processor. Whenever such symbols appear on instruments, please observe appropriate safety measures.

**1. Warnings**

Failure to comply with the following warnings that are affixed to the product can lead to possible personal injury or death.

	<p><b>⚠ WARNING</b></p> <p>For the continued protection against risk of fire, replace only with fuse of the specified type and current ratings.</p>		<p><b>⚠ WARNING</b></p> <p><b>HAZARDOUS VOLTAGE.</b> Disconnect power before servicing.</p>
	<p><b>⚠ WARNING</b></p> <p>Do not use in vicinity of flammable or combustible materials. Fire or explosion may result.</p>		<p><b>⚠ WARNING</b></p> <p><b>Avoid spills on cabinet.</b></p>



*This symbol indicates the potential for a Pinch Point. Do not place fingers in the slot in the Z-axis tower.*



*This symbol indicates the potential presence of a Hot Surface. Turn off the temperature controller and leave sufficient time for cooling or use heat protection prior to handling a bath.*



*Biological hazards can be associated with the materials used on this instrument. Potentially infectious waste and other hazardous waste must be treated in accordance with good laboratory practice guidelines.*

## 2. Cautions

Failure to comply with the following cautionary statement affixed to the product may lead to possible personal injury.



**Do not touch the bottom metal surface of the bath during operation. Insert the bath liner and fill with buffer before turning on power to each bath.**



**The Little Dipper System weighs approximately 59 lbs (26.5 kg). Use caution when lifting the unit to avoid personal injury.**



**Do not under any circumstances lift the unit by the cylindrical tower or its extended gripper arm!! This will damage the instrument!**



**Do not under any circumstances run a protocol while a bath cover is in place.**



**To achieve temperatures above 70°C, a bath cover must be used to obtain and maintain temperatures. When the robot is in use, baths running at high temperatures may need to be topped off due to evaporation.**

## C. Spills and Reagent Disposal



**Observe all national, regional, and local regulations for waste disposal and management.**



**Biological and other hazards can be associated with the materials used on this instrument. Potentially infectious and other hazardous waste materials must be treated in accordance with good laboratory practices.**



**This symbol indicates the potential presence of a Hot Surface. Use care when cleaning a spill in this area to avoid being burned.**

### 1. Cleaning Spills

- a. Turn off the instrument.
- b. Wipe the spill using an absorbent material. Always pull the liquid to the front of the instrument, away from the control panel and around the bath positions.
- c. Clean the deck with a cloth or paper towel and an appropriate disinfectant solution (e.g. 70% ethanol) for the type of spill present.
- d. Wipe the deck dry.
- e. Dispose of the material in a manner that is in accordance with good laboratory practices.

### 2. Disposing of Reagents

Some chemicals used on this instrument can be hazardous. Please adhere to good laboratory practices when disposing of hazardous chemicals.

## II. SITE PREPARATION

The Little Dipper Processor for FISH requires a level surface area of at least 30 x 22 inches (76 x 56 cm) with a vertical clearance of 30 inches (76 cm) (Fig. 1). Locate the unit within 3 feet (1 meter) of a single power outlet that delivers at least 1700 Watts/20 Amps of constant power.

Clear the benchtop before unpacking any cartons. Allow unimpeded access to the Emergency Off (EMO) and main power switches on the right side of the instrument.

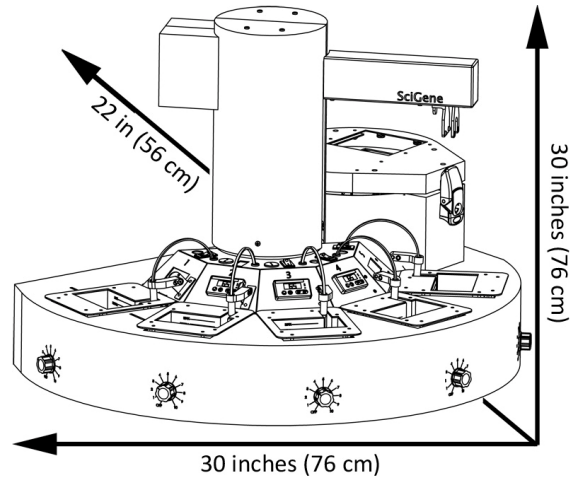


Figure 1. Allow proper clearance for the instrument.

**III. UNPACKING AND SETUP**

**A. Unpacking and Verifying Items**

The Little Dipper Processor instrument weighs about 59 lbs (26.5 kg) and is generally shipped in a large carton with an additional small carton for accessories.



**Do not lift the unit by the robot arm. Always grip the instrument from underneath the base when lifting!!**



**Never attempt to lift or move the instrument alone. Use caution when lifting the unit to protect yourself and others from personal injury.**

1. Open the large carton and remove the interior box and foam.
2. With the aid of another person, carefully lift the instrument by its base only, and place it directly on the benchtop (Fig. 2). Ensure clearance around the instrument making sure not to block the cooling fan in the back.
3. Use scissors to cut the white tie wrap that prevents the gripper arm from rotating during shipping (Fig. 3).
4. Unpack the interior box that contains the touchscreen, power cord and user documentation.
5. Open the smaller carton to remove the accessories and additional components.
6. Verify all packing list items are received in good condition.



Figure 2. Lift by the base.



Figure 3. Cut tie wrap.

Table 1. Items Provided in Shipment

INSTRUMENT Carton	ACCESSORIES Carton*
Little Dipper Processor	Baths, Slide Racks
User Manual	Bath Covers
Power Cord	Digital Thermometer
Touch Screen with Cable	Centrifuge Buckets, Pads and Spacers

\*Varies by configuration.

### System Components

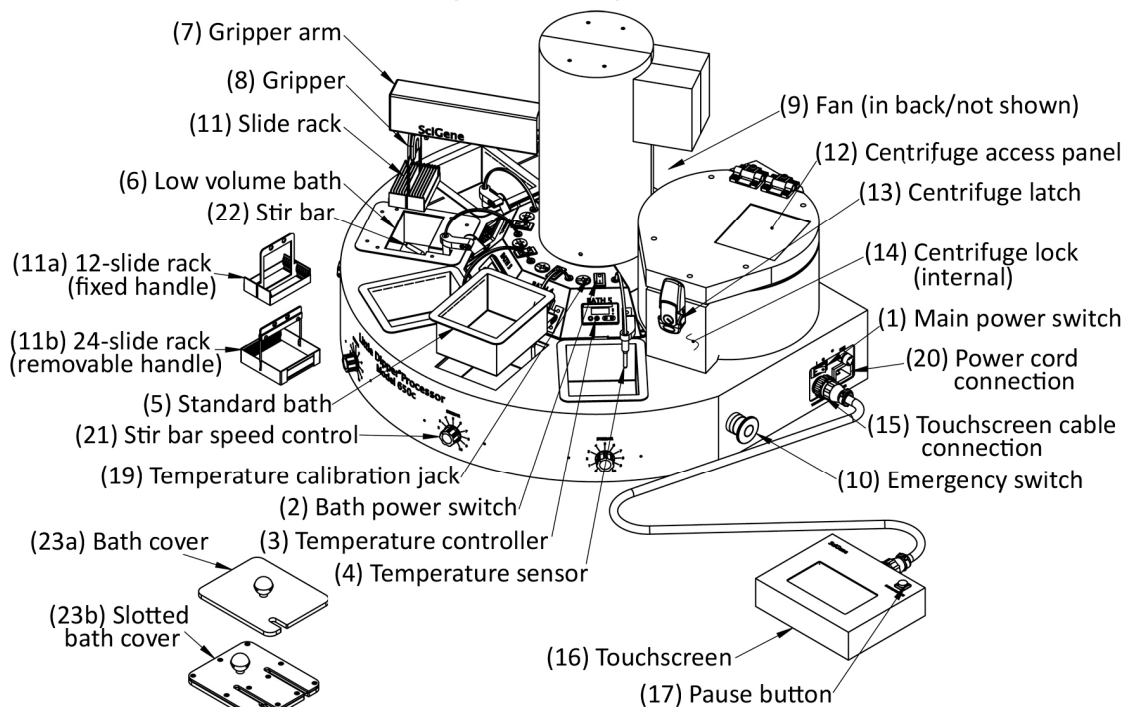


Fig. 4. Little Dipper Processor System Components

### Internal View of Centrifuge

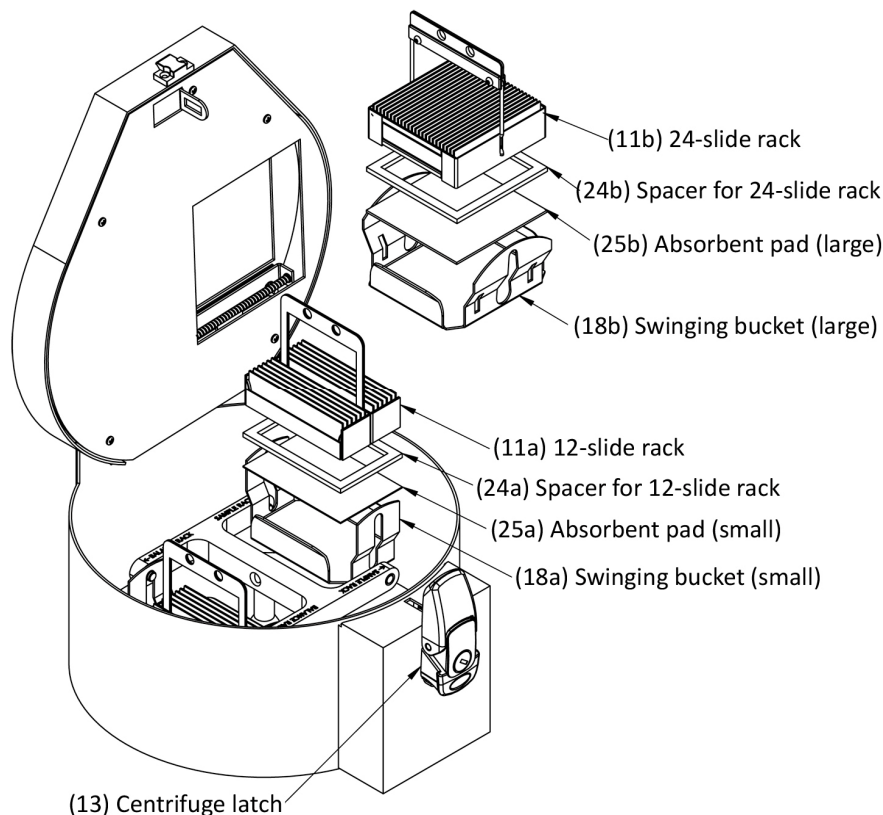


Fig. 5 Internal View of Centrifuge



**B. Identifying System Components** (Figs. 4 and 5)

1. **Main power switch** – Turns on power to the unit
2. **Bath power switch** – Turns on power to each bath, for heating liquid
3. **Temperature controller** – Used to set and observe bath temperature
4. **Temperature sensor** – Transmits bath temperature to controller.
5. **Standard bath** – Removable insert, compatible with most liquids/solvents
6. **Low volume bath** - Removable stainless steel insert
7. **Gripper arm** – Rotates and moves slide racks up and down in baths
8. **Gripper** – Opens, closes and secures the slide rack assembly
9. **Fan** – Draws air through the instrument cabinet for cooling
10. **Emergency switch** – Cuts power for safety
11. **Slide rack(s)** – Holds slides during processing.
12. **Centrifuge access panel** – Automatically opens for the gripper to insert a slide rack
13. **Centrifuge latch** – Keeps lid closed
14. **Centrifuge lock** – Internal lock for safety
15. **Touchscreen cable connection** – Receptacle for attaching control cable
16. **Touchscreen** – Used to create, store and run protocols and for calibration
17. **Pause button** – Toggle switch that stops and restarts a running protocol
18. **Centrifuge swinging buckets** – Green (sample) and red (balance) rack buckets
19. **Temperature calibration jack** - Receptacle for cable to thermometer
20. **Power cord connection** - Receptacle for power cord
21. **Stir bar speed control** – Rotating switch to adjust stir bar speed
22. **Stir bar** – Creates a gentle vortex in the bath
23. **Bath covers** – Lids help achieve and maintain temperatures above 70°C
24. **Slide rack spacer** – Raises rack above absorbent pad
25. **Absorbent pad** – Soaks up excess water in centrifuge

## C. Computer and Power Connections

1. Connect the braided cable to the touchscreen and to the receptacle labeled “TOUCHSCREEN” on the right side of the instrument, using the circular connectors (Fig. 6).
2. Connect the power cord to the receptacle labeled “POWER” on the right side of the instrument (Fig. 7) and to a power source that delivers 15 Amps or more for 115V units or 8 Amps or more for 230V units. Avoid connecting to a circuit with a centrifuge, freezer or other equipment that draws significant power.
3. Turn on the main power switch on the right side of the instrument. The touchscreen should illuminate and the motors should activate (Fig. 8).
4. Briefly turn on power to each of the five baths using the power switch located above each bath position (Fig. 9). Verify that each temperature controller illuminates and then turn off power to each bath position.



**Baths should not be powered on for more than a few seconds without buffer in the bath inserts. Do not heat dry baths.**



Fig. 6. Connect touchscreen.

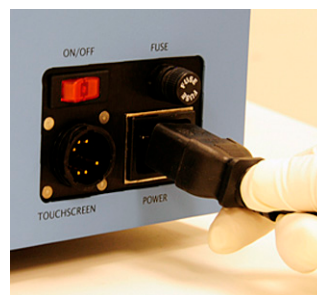


Fig. 7. Connect power cord.



Fig. 8. Turn on main power.

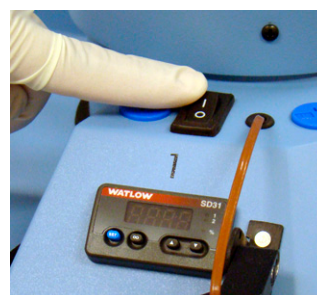


Fig. 9. Briefly turn on baths.

## IV. SYSTEM OPERATION

### A. Installing Baths and Centrifuge Buckets

1. Clean baths, racks and stir bars by rinsing in running tap water, followed by 100 ml of DI water and then 100 ml of ethanol (Fig. 10). Dry with a lint-free towel.
2. Clean sensors with DI water and a lint-free towel (Fig. 11).
3. Install standard or heatable low volume baths by rotating temperature sensors up, placing baths and then lowering sensors (Fig. 12). For low volume baths without temperature control, leave sensors down while placing baths.
4. Place a stir bar in all baths (Fig. 13). Low volume baths use low profile stir bars (SciGene cat. #1080-11-1).



Fig. 10. Clean baths and racks.



Fig. 11. Clean sensors.



Fig. 13. Add stir bars.

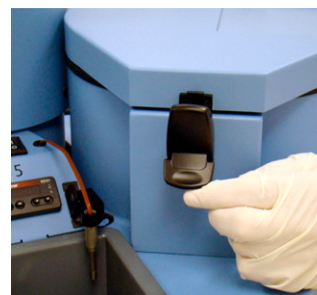


Fig. 14. Unlock centrifuge.

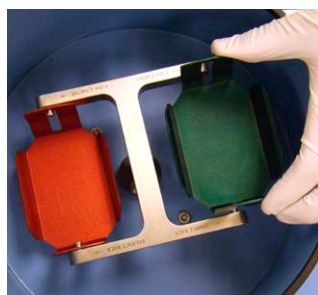


Fig. 15. Insert buckets.

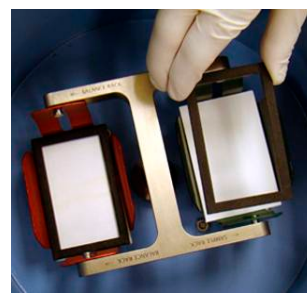


Fig. 16. Insert pads and spacers.

5. Unlock and open the centrifuge (Fig. 14).
6. Hang a red bucket on the rotator arms tabs marked "BALANCE RACK". Repeat using a green bucket on the rotator arms marked "SAMPLE RACK" (Fig. 15).
7. Place an absorbent pad in each bucket with a black frame spacer on top (Fig. 16).
8. Balance the centrifuge by inserting a rack with the same number of slides as the sample rack into the red bucket.
9. Close and lock the centrifuge.

**B. Using the Touch Screen**

Use the handheld touchscreen to navigate between screens, select and run protocols, create new protocols and control instrument movement (Fig. 17). If the touchscreen fails to respond, it may require calibration. See Section VI C. for details.



Fig. 17. Use touchscreen controls.



Fig. 18. Pause protocols as needed.

**C. Using the Pause Button**

The action of the instrument can be immediately stopped and restarted using the illuminated red “PAUSE/RESUME” button at top right on the touchscreen. When pressed, the instrument will stop and the button light will flash. To resume the protocol, press the button again (Fig. 18).

**D. Using the Emergency Stop**

To immediately stop movement of the gripper arm and stir bars, press the red Emergency Stop (EMO) button on the right side of the instrument (Fig. 19). Bath heaters will continue to receive power. To restore power to the gripper arm and stir bars, release the EMO button by rotating it a quarter turn clockwise (Fig. 20). To move the arm, press **Control Panel** on the Home Page and use the up | down | left | right buttons. To remove the slide rack, hold the rack and press the **Open Gripper** button on the Control Panel screen. The protocol will not resume upon releasing the EMO switch and must be restarted from the beginning.



***If the touch screen does not illuminate when the unit is turned on, rotate the red EMO button on the side of the instrument to release the emergency stop.***



Fig. 19. Press EMO to stop.



Fig. 20. Rotate to restore power.

### E. Running a Test Protocol / Practicing Rack Loading

This test verifies the mechanical operation of the instrument and provides the operator an opportunity to practice loading the slide rack onto the gripper. An empty slide rack is automatically moved from bath to bath with agitation, followed by a brief centrifugation. No liquid is required and temperature controllers should remain OFF.



Fig. 21. Quik-tst protocol.

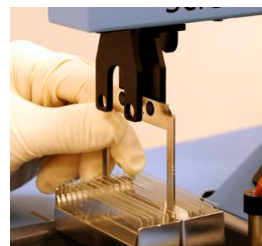


Fig. 22. Load slide rack.

1. Ensure that baths and buckets are properly installed (see section **IV. A. Installing Baths and Centrifuge Buckets**) and correspond to the size of the slide racks to be used. Verify that the all temperature sensors are rotated down.
2. Turn on main power located on the right side of the instrument.
3. Using the touchscreen, press **Run Protocol** from the home screen then select the **Quik-tst** protocol (Fig. 21).
4. Hold an empty slide rack centered in Bath #1, aligned with the black lines on the instrument and slightly below the bath fill line.
5. Start the protocol by pressing **Start Now** on the touchscreen. The gripper arm will lower into Bath #1 with the gripper open. Align the holes in the handle with the two bumps in the gripper paddle as the gripper closes (Fig. 22).

If the gripper closes and the rack is not held securely, press the red EMO switch immediately (Fig. 19). Release the rack, if needed, by pressing **Open Gripper** from the **Control Panel** screen, then select and start the protocol again.



**Immediately press the EMO switch to stop the instrument, if the slide rack fails to mount on the gripper properly or touches the sides of the bath.**

6. The instrument will now agitate the rack in each bath.
7. Observe placement of the slide rack in the baths. The rack will automatically move from the last bath into the centrifuge and spin for a minute.
8. If the rack touches the bath, see **VII. B. Slide Rack Position Calibration**.
9. When the protocol is complete, unlock and open the centrifuge lid to remove the rack from the sample bucket.

## F. Running a Pre-Installed Protocol

The instrument comes configured with validated protocols installed. Refer to the Little Dipper Processor Method corresponding to your protocol for details on how to set up the instrument. Method sheets can be found online at [www.scigene.com](http://www.scigene.com).



**Do not under any circumstances run a protocol while a bath cover is in place.**

**To achieve and maintain temperatures above 70°C, a bath cover must be used, while the machine is NOT in motion. Baths at high temperatures may need buffer(s) added to offset evaporation.**

The following are general guidelines on how to set up and run a pre-installed protocol.

1. Ensure baths, racks and stir bars are free of buffer residue and dust. See section **VI. A. Cleaning Before Every Use**.
2. Insert baths and stir bars as specified for the protocol (Fig. 23).
3. Rotate all temperature sensors down (Fig. 24).

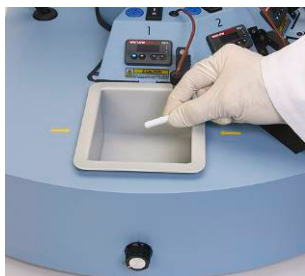


Fig. 23. Place baths and stir bars.



Fig. 24. Rotate sensors down.



Fig. 25. Turn on main power.



Fig. 26. Set temperature(s).

4. Add recommended buffer(s) to the fill line.
5. Turn on main power to the instrument (Fig. 25).
6. Turn on power to bath(s) to be heated and set temperature(s) (Fig. 26). Cover any baths set above 70°C. Allow time for baths to reach set temperature(s).
7. Place a balance rack into the centrifuge with same number of slides as the sample rack.
8. Add sample slides to rack.
9. Remove any bath covers.
10. Submerge the slide rack in Bath #1 between the two black lines.
11. On the touchscreen home page, press **Run Protocol**, then select the desired protocol and press **Start Now** (Fig. 27).

12. Carefully place slide rack onto gripper (Fig. 28). The instrument will perform the steps as programmed.
13. At completion (varies by protocol), remove the rack from the centrifuge (Fig. 29) or from above the last bath (Fig. 30), if running a protocol without centrifugation, by pushing the thumbpad to open the gripper paddle.
14. Clean the instrument per section **VI. B. Cleaning After Every Use**.



Fig. 27. Press Start Now.



Fig. 28. Load sample rack.

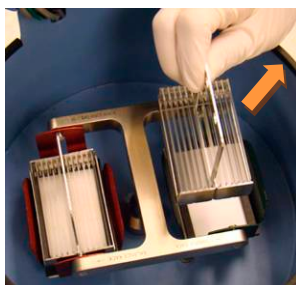


Fig. 29. Remove rack (option 1).



Fig. 30. Remove rack (option 2).

**G. Using the Temperature Controllers**

Temperature controllers are used to regulate heating of the five bath positions. Each controller is calibrated at the factory to provide an accurate bath temperature when operated between 35 to 95°C. The following instructions are general guidelines for setting temperature(s).

1. Select a bath position (according to your protocol) and turn ON the switch above the bath to provide power to the temperature controller. The controller will display both the current (red) and set (green) temperature.



**Baths should not be powered on for more than a few seconds without buffer in the bath inserts. Do not heat dry baths.**



**Do not touch the bottom metal surface of the bath during operation. Insert the bath liner and fill with buffer before turning on power to each bath.**



**This symbol indicates the potential presence of a Hot Surface. Turn off the temperature controller and leave sufficient time for cooling or use heat protection prior to handling a bath.**

2. To change the set temperature, press the up or down arrow buttons until the desired temperature is shown. Allow time for the bath to reach the set temperature and stabilize.

Refer to section **VII. A. Temperature Controller Calibration** for information on calibrating the controllers.

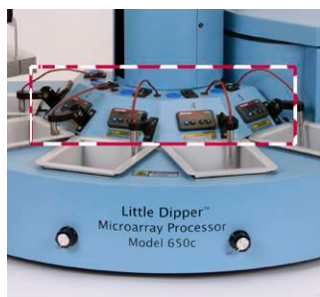


Fig. 31. Temperature controllers.



Fig. 32. Set temperature.



V. CUSTOM PROTOCOLS

A. Adding a Protocol

Custom protocols can be created using the touchscreen. The touchscreen can store up to 14 protocols with 1 to 9 steps each.

1. From the touchscreen Home page, press New/Edit Protocol. On the **Create/Edit Protocol** screen (Fig. 33), use the up/down buttons to move the cursor “»” to “NEW”. Press Select to go to the **Name Protocol** screen (Fig. 34).
2. Within the **Name Protocol** screen, use the shift key to move the “^” (up arrow) within the numeric 10 key pad until the desired letter is indicated. Press to select the indicated letter displayed above the key pad. Continue for up to eight characters.
3. When finished, press Enter to go to the **Step Input** screen (Fig. 35) and then press Step 1.
4. When the **Parameters** screen displays, press the Bath # button, enter “1”, and then press Enter.

 **All protocols start from Bath #1.**



Fig. 33. Create/Edit Protocol screen.



Fig. 34. Name Protocol screen.



Fig. 35. Step Input screen.

5. Select the remaining parameters for Step 1 of the protocol and then enter the desired values within the ranges indicated.

Table 2. Parameter Settings for Custom Protocols

Parameter	Range
Agitation Rate	0-600
Agitation Time	0-32,000 seconds
Drip Time	0-32,000 seconds
Pause Time <sup>1</sup>	0-32,000 seconds

<sup>1</sup> Time the instrument pauses at the end of the step with rack remaining submerged.  
<sup>2</sup> After agitation, time that the rack is suspended above bath, before moving

6. To add a pause within the protocol, do one of the following:
  - Enter time for rack to remain submerged at end of step
  - Enter 9999 for User Control. Rack will stay submerged until the operator presses the touchscreen to resume the protocol.  
This is beneficial for protocols that require more than 5 baths.
7. When all values for Step 1 are entered, press Save and Exit to return to the Step Input screen.
8. Continue to enter values for additional steps (max. 9) (Fig. 36). Remember to program “C” for the centrifuge, if ending in a drying step.
9. When finished creating the protocol, press Save & Exit to return to the Select Protocol screen. Up to 3 steps are displayed at one time on the touch screen. Each screen of the protocol must be saved separately before saving the entire protocol.

**B. Deleting a Protocol**

1. To delete a protocol, press **Control Panel** from the home screen then **Advanced Settings**.
2. Press the **Delete Protocol** button to open the screen.
3. Choose a protocol to delete using the up and down arrows and then press Select. A confirmation screen appears saying “Delete Protocol?” Choose YES to confirm.
4. Press the BACK button on each of the previous screens to return to the home screen.



Fig. 36. Advanced Settings screen.

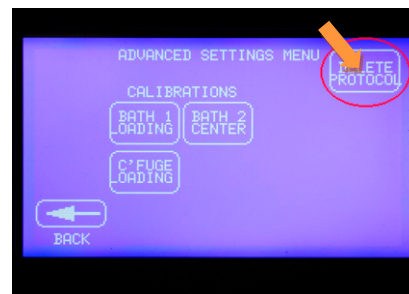


Fig. 37. Delete Protocol button.



Fig. 38. Delete Protocol screen.



Fig. 39. Delete Protocol confirmation.

## VI. PERIODIC MAINTENANCE

### A. Cleaning Before Every Use

Baths, racks and stir bars must be free of buffer residue and dust before processing slides. If they were not cleaned and stored properly after the last use, wash and dry them as follows:

1. Fill baths containing the rack(s) and stir bars with tap water.
2. Wipe racks, stir bars and baths with a lint-free towel.
3. Rinse in running tap water.
4. Rinse with approximately 100-200 ml of DI water.
5. Rinse with 100 ml of ethanol and dry with a lint-free towel.
6. Clean temperature sensors with DI water and a lint-free towel (Fig. 40).

### B. Cleaning After Every Use

1. Wash baths, stir bars and racks with running tap water then rinse in DI water and ethanol and dry with a lint-free towel. Store in clean plastic bags to protect from dust (Fig. 41).
2. Clean temperature sensors with DI water and lint-free towel.
3. Wipe exterior of instrument cabinet with a damp paper towel.



Fig. 40. Clean temperature sensors.



Fig. 41. Place clean baths in bags.

### C. Monthly Cleaning and Calibration

1. Calibrate bath temperatures using a NIST-certified thermometer. See section **VI. A. Temperature Controller Calibration**.
2. Remove and wash the centrifuge buckets and spacers using warm water and lint-free towels.
3. Replace the absorbent pad in each centrifuge bucket.
4. Clean all exterior surfaces of the cabinet, gripper paddles and gripper arm housing with damp, lint-free towels.
5. Remove the centrifuge buckets. Clean the inside surfaces of the centrifuge and rotor with damp, lint-free towels.
6. Inspect the centrifuge buckets for signs of wear or deformation where they hang from the rotor. Replace if worn or bent.

## VII. SYSTEM CALIBRATION

The instrument is calibrated and tested at the factory and should not require adjustment under most circumstances.

### A. Temperature Controller Calibration

The EZ-Zone controllers are calibrated at the factory to provide accurate bath temperatures from ambient +5 to 95°C (Fig. 42). Re-calibration is recommended *only if* the display varies by more than one degree (1°C) to the temperature shown on an externally connected NIST certified digital thermometer (Cat. #1051-52-0).

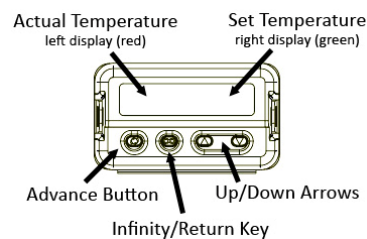


Fig. 42. EZ Zone Controller

To adjust a controller to achieve accurate temperatures:

1. Add water to bath fill line in a standard bath and ensure temperature sensor is down in contact with liquid in the bath.
2. Turn ON the instrument.
3. Turn on the temperature controller and set the temperature on the controller to 65°C. Allow 30 minutes to stabilize.
4. Using the cable provided with the digital thermometer, plug one end into the blue receptacle found above the controller.
5. Turn on the thermometer. Allow 1 minute for thermometer to stabilize. The actual temperature of the bath will be displayed.
6. Calculate the difference between the temperature shown on the controller and on the digital thermometer. For example, if the controller displays 65.0°C and the thermometer displays 66.5°C, the difference (offset) is 1.5°C.
7. On the controller, press the up and down arrows simultaneously for 3 seconds. The left display shows "A1" and the right display shows "open".
8. Press the Advance Button (green circle) 3 times until the right display shows "i.CA". The left display shows the offset value between the controller and thermometer when the unit was last calibrated.
9. Use the up or down arrow to adjust the offset value to the temperature difference calculated in Step 4. For example, if the controller shows a temperature 1.5°C lower than the thermometer, adjust the offset by adding 1.5 to the value shown.
10. Press the Infinity Key (∞) twice to exit calibration and return to the operation display. Verify that the temperature on the thermometer matches the display. The controller is now calibrated to provide accurate temperatures from 35 to 95°C.

## B. Slide Rack Position Calibration

The instrument is calibrated and tested at the factory for proper rack positioning and should not require adjustment unless a new touchscreen is installed. The following tests check proper alignment. Baths should remain OFF with no liquid needed.

### 1. Bath #1 Loading

- Insert standard baths into Baths #1 and #2.
- Insert and activate stir bars.
- Hold a 12-position rack in Bath #1, aligned with the black lines on the instrument and slightly below the fill line.
- Using the touchscreen, press **Control Panel | Advanced Settings | Bath 1 Loading** (Fig. 43). The gripper arm will move over Bath #1, open and lower. Align the slide rack handle onto the paddle bumps on the open gripper. The gripper will not close.
- While continuing to hold the rack on the open gripper, use the left/right and up/down arrows on the touchscreen to position the rack in the center of the bath, above the rotating stir bar such that it does not touch the rotating stir bar.
- When finished, remove the rack from the gripper and click Save/Exit to save settings.



Fig. 43. Calibrate Bath 1 Loading screen.



Fig. 44. Center slide rack in Bath 2 screen.

### 2. Bath #2 Center Calibration

- Insert standard baths into Baths #1 and #2 with stir bars.
- Activate stir bars.
- Hold a 12-position rack in Bath #1, aligned with the black lines on the instrument and slightly below the fill line.
- Using the touchscreen, press **Control Panel | Advanced Settings | Bath 2 Center** (Fig. 44). The gripper arm will move over Bath #1, open and lower. Load the slide rack handle onto the paddle bumps on the gripper as it closes. Let go of the rack.
- The gripper arm will move the rack to Bath #2 and stop. Verify that the rack is centered in Bath #2. Use the left/right arrows to adjust the position if necessary.
- Press Save/Exit when finished.

## C. Centrifuge Loading Calibration

This test ensures the rack is automatically inserted into the sample bucket of the centrifuge.

1. Hold a 12-position rack in Bath #1. In the **Advanced Settings** screen, press **C'fuge Loading** (Fig. 45). Load the rack onto the gripper. The gripper will close and then move the rack to the centrifuge (Fig. 46). The centrifuge access panel opens automatically and the gripper arm lowers the rack inside, stopping at a set position in the green bucket.
2. Look down through the access panel to verify that the rack is centered from side to side in the bucket. Use the arrow buttons to adjust the position of the arm and centrifuge rotor if needed.
3. Press Save/Exit. The arm will move up and down in the centrifuge and then release the rack. Make sure the rack gently falls into place into the green bucket.



Fig. 45. Calibrate Centrifuge Loading screen.

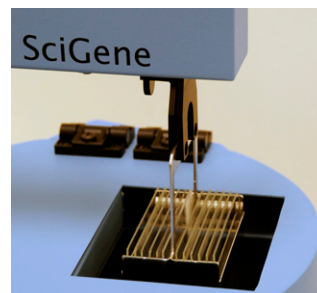


Fig. 46. Rack loading into centrifuge.

## D. Touch Screen Calibration

If the touchscreen fails to respond to touch, it may need calibration.

1. To access the Touchscreen Calibration screen, press the touchscreen while the instrument is powering up.
2. Touch point 1 (Fig. 47).
3. On the Point 2 screen, touch point 2.
4. On the Point 3 screen, touch point 3 (Fig. 48).
5. After the Home screen displays, check that the screen now responds to touch. If it does not respond, contact your SciGene representative.




Fig. 47. Touchscreen calibration point 1.



Fig. 48. Touchscreen calibration point 3.

VIII. SPECIFICATIONS

Electrical	
<b>Power supply</b>	115V AC, 50/60 Hz; 1700W; 20 Amps (cat. #1080-70-1) 230V AC; 50/60 Hz; 1700W; 10 Amps (cat. #1080-70-2)
Processing	
<b>Control</b>	Software-controlled by external touchscreen
<b>Slide capacity</b>	Holds up to 24 slides per batch
<b>Centrifuge speed</b>	690 RPM ± 15 RPM
<b>Temperature Control</b>	Range: Ambient: +5 to 95°C (41 to 194°F) Regulation: ± 0.5°C from set point
<b>Bath volumes</b>	 <p>Standard: 670 ml      Low volume heatable: 270ml      Low volume: 210 ml</p>
Environmental	
<b>Ambient temperature</b>	Operation: +15 to +32°C (58 to 90°F) Storage: -20 to +60°C (-4 to 140°F)
<b>Relative humidity</b>	Operation: 20 to 80% RH non-condensing Storage: 10 to 90% RH non-condensing
<b>Overvoltage category</b>	II
Physical	
<b>Dimensions</b>	51 x 71 x 56 cm (20 x 28 x 22 inches) (H x W x D)
<b>Weight (net)</b>	26.5 kg (59 lbs)

IX. ORDERING INFORMATION

SciGene Cat. #	Product Description	UOM
1080-10-1	Standard Bath, 670 ml.	Each
1080-10-2	Low Volume Bath, 210 ml. Includes a glass insert and stir bar.	Each
1080-10-5	Low Volume Heatable Bath, 275 ml. Includes a glass insert and stir bar.	Each
1080-11-0	Stir bars for Little Dipper standard baths, 10/pk.	10/PK
1080-11-1	Stir bars for Little Dipper low volume baths, 10/pk.	10/PK
1080-12-0	Bath cover.	Each
1080-12-1	Bath cover, 5/pk.	5/PK
1080-12-2	Bath cover, slotted, for Little Dipper 12-position slide rack.	Each
1080-12-4	Bath cover, slotted, for Little Dipper 24-position slide rack.	Each
1080-20-1	Slide Rack, 12-Position for standard 3 inch slides. Includes handle.	Each
1080-20-0	Slide Rack, 24-Position for standard 3 inch slides, without handle.	Each
1080-20-5	Slide Rack, 24-Position for standard 3 inch slides. Includes handle	Each
1080-24-0	Handle for Hybex or 24-position racks.	Each
1080-25-0	24 Slide Rack Kit. Includes two 24-slide racks, buckets (red/green), spacers and pads.	Each
1080-21-0	Absorbent Pads for Slide Rack Buckets, Hybex and 24-position, 25/pk.	25/PK
1080-21-1	Absorbent Pads for Slide Rack Buckets, 12-Position, 25/pk.	25/PK
1080-23-1	Slide Rack Bucket for Samples, green, 12-position racks.	Each
1080-23-2	Slide Rack Bucket for Balance, red, 12-position racks.	Each
1080-23-3	Spacer for Rack Bucket, 2/pk, 12-position racks.	PK
1080-22-1	Slide Rack Bucket for Samples, green, Hybex and 24-position racks.	Each
1080-22-2	Slide Rack Bucket for Balance, red, Hybex and 24-position racks.	Each
1080-22-3	Spacer for Rack Bucket, 2/pk, Hybex and 24-position racks.	2/PK
1080-41-0	Little Dipper Upgrade Kit for Agilent Arrays.	Each

X. TROUBLESHOOTING

Indication	Probable Cause	Corrective Action
Instrument does not power ON.	Power disconnected	Check power connections.
	Main power switch is OFF.	Turn main power switch ON.
	Fuse has blown.	Replace fuse with same type.
Instrument is receiving power but robot will not respond.	Emergency stop button has been activated.	Twist the red EMO button on the side of the instrument to release the emergency stop.
Protocol does not run.	Pause button has been activated.	Press the red pause button on the top of the touch screen.
Bath temperature varies by several degrees from NIST-certified thermometer.	Temperature controller needs to be re-calibrated.	Follow the instructions in section VII. A. Temperature Controller Calibration.
Touchscreen does not respond.	Touchscreen needs calibration	Follow the instructions in section VII. A. Touchscreen Calibration.

Question	Answer
How do I clean the instrument?	Refer to section VI. C. Periodic Maintenance and/or request a "Little Dipper Periodic Cleaning and Maintenance" document from your SciGene representative (Fig. 49).
How do I safely move the instrument?	Request a "Packing the Little Dipper Processor for Shipment" document (Fig. X-2) from your SciGene representative (Fig. 50).



Fig. 49. Maintenance instructions.



Fig. 50. Repackaging instructions



## XI. SERVICE

### A. Lockout Procedure

If a malfunction or need for service occurs, comply with the following lockout procedure for restricting use of the instrument. All users, upon observing that the instrument is locked out for servicing or maintenance shall not attempt to start, energize, or use the equipment.

1. Notify all affected users that servicing or maintenance is required and that the instrument must be shut down and locked out to perform the servicing or maintenance.
2. If the machine is operating, shut it down by the normal stopping procedure (turn off baths and main power or press the EMO switch).
3. Disconnect the power cord from the wall socket and from the instrument so that the machine is isolated from energy sources (Fig. 51).
4. Twist and remove the fuse (Fig. 52). Place in a locked safe.
5. Contact your SciGene representative to arrange for service.



Fig. 51. Disconnect power cord.



Fig. 52. Remove fuse.

### B. Fuse Replacement

The fuse may be replaced by turning off and unplugging the unit, then gently twisting and removing the old fuse. Replace with a new fuse (slow blow) with the same electrical rating (250V, 20A for 115V or 250V, 10A for 230V).

## XII. DECLARATION OF CONFORMITY

### Little Dipper Processor, Model 650c

SciGene  
 470 Lakeside Dr, Ste F  
 Sunnyvale, CA 94085-4720 USA



Declares that the above referenced product(s) meets the essential requirements of the following European Union Directives by using the relevant standards shown below to indicate compliance.

#### EMC Directive 2004/108/EC

<b>EN 61326-1</b>	<b>2006</b>	<b>Electrical equipment for measurement, control and laboratory use to include:</b>
EN 61000-4-2	1995	+A1: 1998 +A2: 2001
EN 61000-4-3	2006	
EN 61000-4-4	2004	
EN 61000-4-6	2007	

#### LVD Directive 2006/95/EC

<b>EN 60204-1</b>	<b>2006</b>	<b>Electrical equipment of machines</b>
<b>EN 61010-1</b>	<b>2004</b>	<b>Safety requirements for measurement, control and laboratory use</b>
	<b>2<sup>nd</sup> Edition</b>	<b>Part 1: General requirements</b>

Terry Gill  
Name of Authorized Representative

Sunnyvale, California, USA  
Place of Issue

Director of Product Manufacturing  
Title of Authorized Representative

June 17, 2010  
Date of Issue

  
Signature of Authorized Representative