



Operating Instructions
Vibratome Series 900R –
Bath Refrigeration System

Your Complete Source for Fresh or
Fresh Fixed Tissue Sectioning
Applications

**OPERATING INSTRUCTIONS FOR VIBRATOME 900R REFRIGERATION
MODULE AND DIGITAL TEMPERATURE CONTROLLER –PART NO. 094018**

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1. Summary of Operation

The Vibratome 900R is designed to provide consistent accurate cooling control to the Vibratome specimen bath. The 900R will hold temperature setpoint within ½ degree. The temperature control utilizes a peltier cooling unit. Peltier cooling units are heat exchangers that generate cooling by removing the heat. In order for a peltier to continue cooling, the heat must be removed from the cooling unit. Therefore, the 900R requires an external water source to act as a radiator and remove generated heat. The 900R is shipped with fittings and water hoses to accomplish this goal. For those installations where an external water source is not available or practical, an optional closed loop water system is available (Catalog # 095018).

The Vibratome 900R bath mounts inside your current Vibratome bath. A post is placed in the mounting hole that typically secures the vice. The bath then sits down on the top of this vice. The control unit has a simple set point control LED readout and pushbutton entry control. Once the unit is on, the LED displays the set point and current temperature. The set point can be adjusted by simply incrementing the set point up or down via the pushbuttons.

2. Unpacking and Checking Package Contents

Your VIBRATOME 900R REFRIGERATION MODULE AND DIGITAL TEMPERATURE CONTROLLER –PART NO. 094018
Is comprised of the following items:

1. Digital Temperature Controller with AC line cord
2. Refrigeration Bath Module with 3 foot connector lead and water tubing
3. 5 foot water tubing extension with universal tubing adapter and self sealing female fittings
4. Operating Manual with Warranty Registration Card

Optional accessories purchased with this unit may include:

1. Water pump and tank unit Catalog # 095018 or
2. Electrically controlled solenoid valve ECV-1

Supplied with the #095018 are:

1. An AC line cord with auxiliary input connector
2. 2- 5 foot extension water tubes with male and female self sealing fittings

Supplied with the ECV-1 are:

1. An AC line cord with auxiliary input connector
2. A 12 VDC 1.3 Amp Desktop Power Supply

3. Mounting the Refrigeration Module to your Vibratome Sectioning System

Retrofits:

- 1) Remove the large hex nut screw that mounts the specimen vice to the post that raises or lowers the specimen. This screw can be found directly in the center of the vice, which is located in the black specimen bath.
- 2) Place the provided adapter into the hole which previously secured the vice and tighten with provided allen wrench

All Units

- 3) Remove the black refrigeration bath from its packaging.
- 4) Double check the position of the bath-mounting handle that sticks out the side of the black bath to make sure that it is not already compressing the mounting ring on the bottom side of the bath.
- 5) Place bath in large black bath with handle in the front right hand position. You will see a hole with a compression mounting ring on the under side of the bath. This hole goes over the recently installed mounting post.
- 6) Push handle forward to lock bath in place. If pushing lever forward does not lock the bath down, loosen handle, pull it back, re-tighten handle, and push handle forward again until tight.

4. Connecting the Controller and Water supply or Pump and Tank Unit

Unpack your Vibratome Controller and connect the electrical lead from the refrigeration module to the mating socket on the rear of the controller. Rotate the collar on the connector housing in a clockwise direction to lock in place.

If you purchased the #095018 water pump and tank unit or the ECV-1 electrically operated solenoid valve with your system see the separate instructions below for installation.

Locate the 5-foot extension water tubes and connect the self-sealing connector female ends of these tubes to the male connectors on the water tubes from the refrigeration module. Connect the end of the tube with the universal tubing adapter to your sink water supply using any suitable water tube with a diameter of up to ½ inch. (A 5/8 inch adapter is available upon request). Place the open tubing end from the remaining tube into the sink or waste drain.

Closed Loop Water System - #095018 Installation Instructions

The #095018 is supplied with an AC line cord for connection to the auxiliary outlet on the controller and two 5-foot water tubes with male and female connectors.

Unpack the pump and tank unit and unscrew the white cap on top of the tank. Fill the tank to within 3 inches of the top lip of the neck with distilled water (approx 5 gallons). Add the sachet of purification agent to the tank. This prevents the growth of algae inside the tubing and tank. If the tank is ever emptied and refilled substitute a small quantity of any commercially available dehumidifier treatment in liquid or tablet form to treat the water.

Connect the AC line cord to the socket on the side of the tank and to the auxiliary output socket on the rear panel of the controller. This ensures that the pump is always turned on when the refrigeration module is operative.

Please Note: If the refrigeration module is in use for extended periods of time, the water temperature will gradually increase. Ice cubes may be added to the tank to reduce the water temperature.

The tank should be placed no lower than 40 inches below the refrigeration module.

Connect the male ends of the extension water tubes to the mating outlet and return on top of the tank. Connect the female ends to the tubes from the refrigeration module. Please note that these connectors are self-sealing to prevent water spills in the event that they are disconnected while the pump is operating.

ECV-1 Installation instructions

Unpack the ECV-1 electrically operated solenoid valve. The package includes an AC line cord and 12VDC desktop power supply. Connect the line cord to the socket on the power supply and to the rear auxiliary outlet on the Controller. Connect the power supply 12VDC output to the input socket on the valve housing. Connect one of the male fittings from the water tubes from the Refrigeration module to the female fitting on the valve housing. Connect the female end of the extension water tube with the universal tubing adapter at one end to the male fitting on the valve housing and the other end to your water source. Connect the remaining water tube directly to the other male water fitting from the refrigeration module and run the other end to the sink or waste.

5. Operating Instructions

Ensure that the Power switch on the rear panel of the controller is in the “off” position.

Check the voltage selector switch on the rear panel to ensure that it is set for the correct line voltage.

Connect the AC power cord supplied with the controller to the mating socket on the rear of the controller and any suitable grounded AC outlet.

Unless you have a #095018 or ECV-1, turn on the water supply and adjust the flow rate so that, with the return water tube held horizontally over the sink, the stream falls approximately 3 inches beyond the end of the tubing.

Turn the power switch on the rear of the controller on and ensure that the display on the front is illuminated.

If you purchased the ECV-1 and have installed it according to the instructions above, turn on the water supply now and adjust the flow rate as described in section 4 above. If you have a #95018 check that the neon lamp on the side of the pump is illuminated and you can hear a low hum from the pump. Check that water is flowing by observation of movement of air bubbles inside the tubing or, by removing the cap on the tank, the stream of water from the return tube which is located at the top of the tank underneath the tubing connections.

In the event that a loud noise is heard from the pump replace the cap on the water reservoir and tip the pump housing to an angle of approximately 45 degrees in all directions for about 15 – 20 seconds.

Air is sometimes trapped inside the pump when it is initially filled and this procedure will release it. It may be necessary to repeat this process if the tank is ever emptied and refilled.

Setting the module operating temperature

The operating temperature may be set anywhere in the range from ambient down to –10 degrees centigrade. Depress the menu button on the left side of the controller display and hold it down while depressing the up or down buttons in the middle and on the right of the display to increase or decrease the operating temperature. The set temperature is displayed in red on the lower half of the display. When the buttons are released the module will automatically adjust to the new set point. The actual module temperature is displayed in the upper half of the display in green.

WARNING! Various functions of the display and controller are accessible via the three buttons on the display. It is inadvisable to make any adjustments to these parameters, which are preset at the factory for optimum performance. In the event that these operating parameters are changed accidentally please consult our engineering department for restoration to the original settings.

6. Troubleshooting

1. Controller display fails to illuminate when power is turned on.

Check power cord continuity from the ac outlet to the input socket on the rear of the controller. Check the fuse next to the ac input socket in the rear panel. If these are both OK try a different AC outlet.

2. Fault Condition lamp is illuminated

If the #095018 or ECV-1 is being used, check for adequate water flow as described in section 5 above. Touch the silver heat sink on the underside of the refrigeration bath cautiously to see if it were hot to the touch – this would indicate a low or inadequate flow rate.

If water flow is OK the stage or controller may be defective. In order to check the stage, turn off the power to the controller and remove the stage connection from the rear of the controller by turning the collar in an anticlockwise direction. An ohmmeter will be required to make several readings on the stage connector.

Once the connector has been removed the pin numbers are visible as slightly raised numerals on the face of the connector.

Between pins 1 and 2	1 – 3 ohms
3 and 5	100 – 110 ohms
6 and 7	20 – 27 Kiloohms

If the readings you obtain do not fall within these ranges please consult our engineering department for instructions.

3. Controller display is illuminated but module does not cool

Check the setting of the set temperature and adjust if necessary using the instructions provided in section 5. If the set temperature is OK check the connector to the module cable on the rear of the Controller and the fault condition light on the front of the Controller.

If the fault light is on follow instructions for fault condition number 2.

7. SPECIFICATIONS

Controller Specifications

Size:	9 ½ inches W x 10 inches D x 4 ½ inches H
Weight:	5 pounds
Power Requirements:	110-120VAC @ 4 Amps or 220-240 VAC @ 2 Amps Factory set Grounded Outlet
Operating Range:	-10 degrees to Ambient Centigrade
Controller Resolution:	0.1 degrees Centigrade
Display:	Dual display of set and run Temp. In 9mm and 11mm high led digits Respectively
Control Accuracy:	+ or – 0.2 degrees Centigrade
Power Output to cooling stage:	12 Volts DC @ 10 Amps

Feedback Sensor: 100 ohm Platinum RTD

Safety Features: Power shutoff during overtemperature condition caused by inadequate coolant flow (50 degrees C)

Auxiliary AC Outlet: Switched AC Power outlet for #095018 or ECV-1

Refrigeration Module Specifications

Size (including bath) : 4 x 3 3/8 inches x 1 7/16 thick

Weight: 2.5 pounds

Temperature Range: Ambient to –10 degrees Centigrade

Cooling Capacity: 120 watts

Nominal operating Voltage: 12 VDC

Nominal operating Current: 10 Amps

9. Warranty and return information

The Vibratome Company warrants this instrument for 12 months from the date of shipment. Repair or replacement will be made at the discretion of the Vibratome Company if the defect is not the result of misuse or abuse. The Vibratome Company accepts no consequential liability for delay in delivery, alleged faulty performance of product or any other cause.

If the refrigeration module or Controller is to be returned for any reason, please pack it with care and send it pre-paid to:

Service Department
The Vibratome Company
5918 Evergreen Blvd
St. Louis, MO 63134

For your protection, when returning this item, please insure it for full value against possible shipping damage or loss. The Vibratome Company will not be responsible for damage resulting from improper packaging

Please include with the instrument:

- a) A note describing any problems encountered.
- b) The name and telephone number of a person we can contact
- c) The complete return address for shipping,

For service information, contact us at: Telephone 314-522-8671
Fax 314-522-6360
E-mail support@vibratome.com