

**PROGRAMMABLE SLIDE STAINER
USER'S GUIDE
MODELS MS & DS**

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TABLE OF CONTENTS

Chapter	Page
1 Technical Specifications of Models	1
2 System Diagram	3
3 Set Up	5
3.1 Checking the Equipment	5
3.2 Installing the Unit	5
3.2.1 Unpacking	5
3.2.2 Leveling the Unit	5
3.2.3 Installing the Fluid-Flow Lines	5
3.2.4 Connecting the Power	6
4 Controls and Displays	7
4.1 Displays	7
4.2 Function Keys	8
5 Installation	9
5.1 Testing the Fluid-Flow	9
5.2 Testing Unit Operation	9
5.3 Set the Drying Well Temperature	9
5.4 Install Exhaust Ducting (Optional Feature)	10
6 Using the Stainer	11
6.1 Loading the Slide Carrier	11
6.2 Filling the Reagent Vessels	11
6.3 Functional Modes	11
6.4 Manual Operation	12
6.5 Programming a Staining Procedure	12
6.5.1 Enter the Programming Mode	12
6.5.2 Assign the Program ID Number	12
6.5.3 Select Step Number 1	12
6.5.4 Select Bath Number	12
6.5.5 Agitation	13
6.5.6 Select the Time in the Bath	13
6.5.7 Program the Remaining Steps	13
6.5.8 End the Program	13
6.6 Reviewing a Stored Program	13
6.7 Editing a Program	13
6.8 Running a Program	14

TABLE OF CONTENTS

Chapter	Page
7 Special Functions and Features	15
7.1 The Soak Function	15
7.2 Stopping a Program or Operation	15
7.3 Program Advance	15
7.4 Safety Interlock	15
7.5 Agitation	15
7.6 Drying Well Temperature Control	16
7.7 Fluid Flow	16
7.8 Printing Records	16
7.9 Setting the Printer Baud Rate	17
7.10 Exhaust System	17
7.11 Reagent Vessel Cover Plate	17
7.12 Power Interrupt Alarm	17
7.13 Fail-Safe Feature	18
8 Maintenance, Support, Warranty	19
8.1 Routine Cleaning	19
8.2 Draining the Fluid Tank	19
8.3 Service and Sales Support	19
8.4 Carl Zeiss, Inc. Limited Warranty	19

MICROM Programmable Slide Stainers are available in four (4) different model configurations to match your laboratory's needs. Depending upon the model selected, the number of available reagent stations ranges from a minimum of 4 (MS-100) to a maximum of 20 (DS-50). The maximum slide holding capacity is 50 or 100 standard microscope slides depending upon which model is selected.

Model configurations, number of reagent stations and slide capacities are as follows:

MS-50	Reagent Stations =	8
	Slide Capacity =	50
MS-100	Reagent Stations =	4
	Slide Capacity =	100
DS-50	Reagent Stations =	20
	Slide Capacity =	50
DS-100	Reagent Stations =	10
	Slide Capacity =	100

The MS-50 can easily be converted to an MS-100 by removing every other stainless steel rod in the carrier to accommodate 1200ml reagent vessels and replacing the Slide Basket-50 with a Slide Basket-100. See the Carrier Conversion Instructions, supplied with each carrier, for complete instructions. You may purchase 50 or 100 slide baskets and reagent vessels as accessories to your unit. This is an economical way to obtain the capabilities of two different types of stainers. The conversion between the DS-50 and the DS-100 is just simple; you just convert the carriers and replace the reagent vessels and the slide basket.

Note! All carriers are convertible.
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TECHNICAL SPECIFICATIONS

Fluid Data

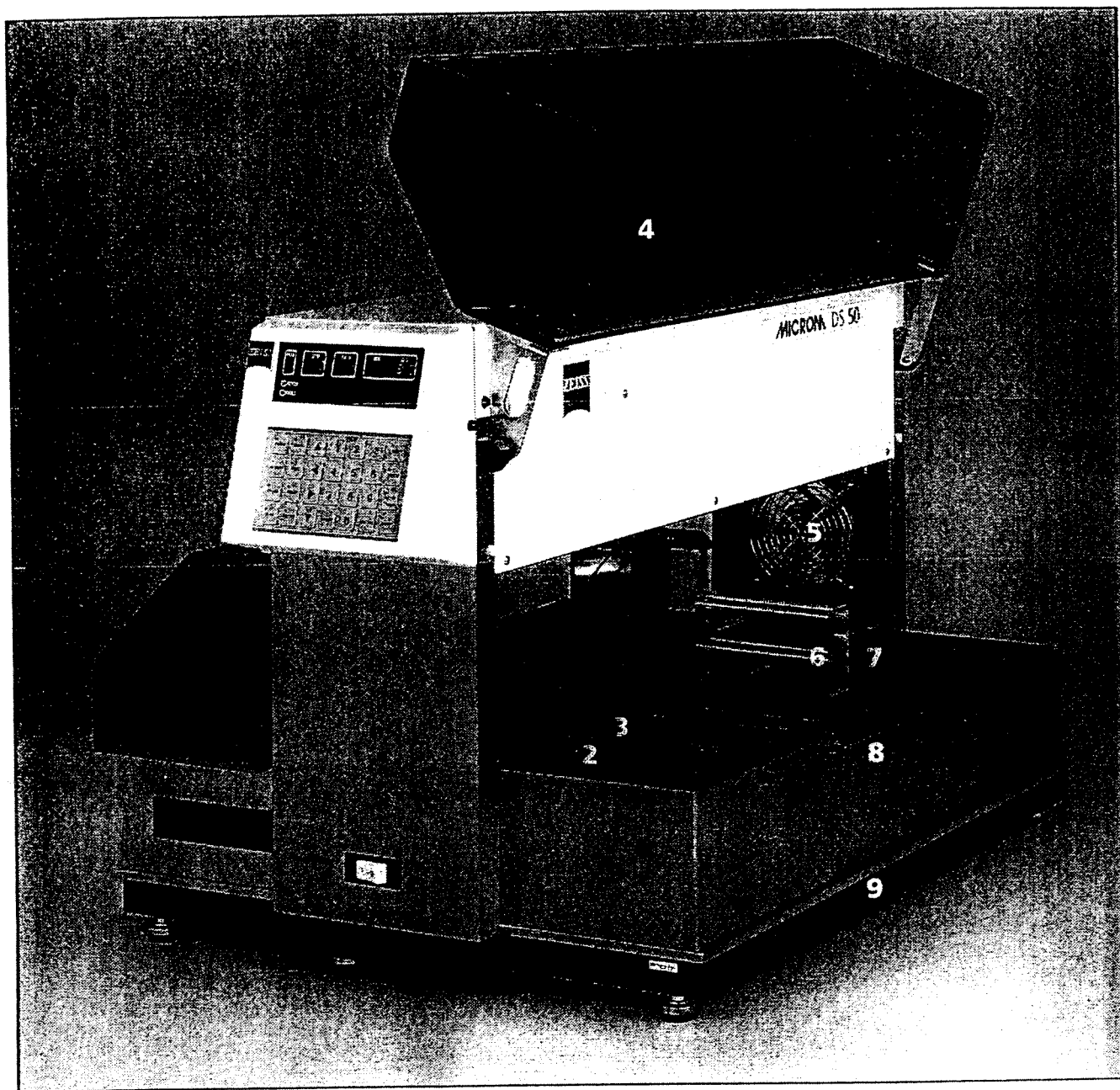
Input Line Pressure:10 to 100 PSIA
 Flow-Through Rate: Factory set via regulator approximately 1 liter/min
 Recirculation Rate: Pump set at approximately 3.5 liters/min
 Water-In Line: 3/8 in reinforced flexible tubing to fit standard laboratory water tap. Adapter required for other taps.
 Drain Line:1/2 in. flexible tubing
 Wash Tank Capacity: Approximately 1,750 ml

Electrical

Power:115 VAC nominal (105 to 128), 50/60 Hz
220-240 VAC nominal, 50/60 Hz available by factory order
 Power Consumption:3.6 amp peak
 Fuses:4 amp Circuit Breaker on On/Off Switch

Model	MS/100	MS/50	DS/100	DS/50
Slide Capacity:	100	50	100	50
Staining Stations:	4	8	10	20
Vessel Capacity in ml:	1,200	600	1,200	600
Weight in pounds:	83 (37.7 kg)	83 (37.7 kg)	116 (52.2 kg)	116 (52.2 kg)
Height in inches:	22 (55.9 cm)	22 (55.9 cm)	22 (55.9 cm)	22 (55.9 cm)
Width in inches:	16 (40.6 cm)	16 (40.6 cm)	24 (61.0 cm)	24 (61.0 cm)
Length in inches:	32 (88.9 cm)	32 (88.9 cm)	35 (88.9 cm)	35 (88.9 cm)

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|---|------------------|---|----------------------------------|
| 1 | Control Panel | 6 | Robotic Arm with Slide Basket |
| 2 | Drying Well | 7 | Reagent Vessels |
| 3 | Wash Tank | 8 | Removable Reagent Vessel Carrier |
| 4 | Transparent Hood | 9 | Carrier Drip Tray |
| 5 | Exhaust Fan | | |

3.1 CHECKING THE EQUIPMENT

Check the shipping carton and unit. Notify your Zeiss representative immediately if you notice any damaged or missing items.

Your shipping container should contain the Programmable Slide Stainer and the following accessories:

- Reagent Vessels
- Carrier Tray
- Carrier Cover
- Slide Basket
- Basket Tool
- Fluid-Flow Installation Kit
- Operator's Manual
- Warranty Card

The model and catalog numbers of each item are on the packing slip enclosed with the unit. Any accessories ordered will also be listed on the packing slip.

3.2 INSTALLING THE UNIT

Installation procedures are the same for all models.

3.2.1 UNPACKING

Remove the unit from its carton and place it on the intended work area. The front (the side with the control panel) should face you. Follow the Unpacking and Setup Instructions included on the shipping container.

3.2.2 LEVELING THE UNIT

Level the unit front to back and left to right by turning the adjustable feet with a 3/8" open end wrench.

CAUTION! Non-level operation could cause improper solution and water levels, resulting in spill over.

3.2.3 INSTALLING FLUID-FLOW LINES

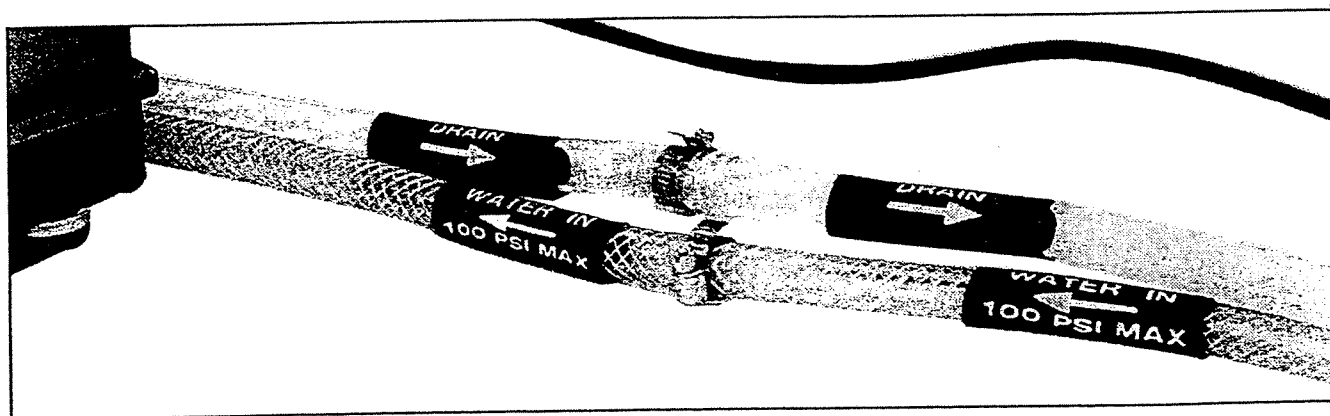
Two lengths of tubing about 18 inches long extend from beneath the unit. One is marked "Drain", and the other is marked "Water In". Both can be routed under the unit to exit from any side of the Stainer. Route the Drain Line to your sink or waste drain. Route the Water-In Line to your water supply.

Open the Fluid-Flow Installation Kit. There are two lengths of extension tubing and three hose clamps.

First, take the extension tubing marked "Drain", slip a hose clamp over it, and push one end of the extension tubing firmly onto the barbed fitting on the Drain Line attached to the slide stainer. Slide the hose clamp along the tubing until it is centered in the portion of the tubing covering the barbed fitting. Tighten the clamp.

Next, take the extension tubing marked "Water In", and slip two hose clamps over the extension tube. Push one end of the extension tubing firmly over the barbed fitting on the Water In Line. Place one hose clamp about 3/8" from the end of the tubing over the barbed fitting and tighten the clamp.

Route the drain line to your drain. Secure the drain tubing at the sink end to prevent it from being accidentally knocked away. Be sure not to restrict fluid flow.



CAUTION! The drain line must run downhill all the way to your drain and must not have any loops or kinks. Keep the drain tube as short as possible to reduce the chance of loops or kinks forming.

Connect the Water-In extension line to your water supply. Slip the hose clamp over the end to the tubing, and push the tubing onto the barbed fitting on your water supply. Secure the connection with the hose clamp.

NOTE! (1) The tubing supplied is for a standard laboratory barbed spigot faucet. If you are using another type of faucet, purchase a barbed-fitting adapter to your particular fixture from a plumbing or laboratory supply house. (2) Even if you plan to use only a captive fluid and do not intend to use an external water supply, you must still install the drain line to serve as an "overflow" line.

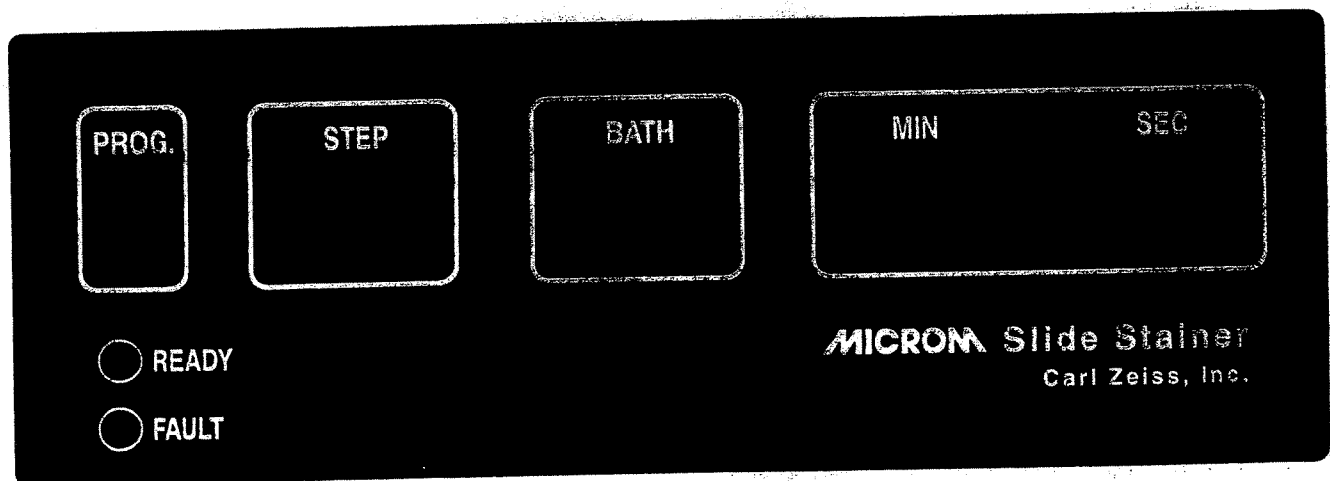
3.2.4 CONNECTING THE POWER

CAUTION! Prior to connecting the unit, make sure you are using a properly grounded outlet. Do not use an ungrounded adapter to connect the power cord to a two-prong outlet. If this equipment is not grounded, it may be unsafe.

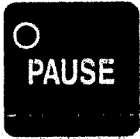
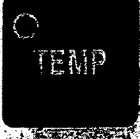
Place the power switch in the OFF position. Plug the power cord into a 115 VAC 60 Hz 3-prong grounded outlet.

4.1 DISPLAYS

PROG.	Displays ID of program in process
STEP	Displays the step number of the program in progress. Remains blank in the manual mode.
READY	Lights if the unit is functional and ready for operation.
FAULT	Lights in case of malfunction or blocking of the slide carrier arm mount
BATH	Indicates the bath (staining station) where the slide carrier is located or approaching
MIN/SEC	Shows how long the slide carrier has been immersed. When running a program, it displays the time remaining in a bath (count down). In the manual mode it displays the time spent in a bath (count up).



4.2 FUNCTION KEYS

<i>Indicator Lights</i> <i>Lit when the unit is operating in this mode</i> Keys and stores staining programs			Leaves the slide basket in carrier in the "down" position after a procedure is completed*
Examines a stored program step by step			Agitates the slide carrier basket when it is immersed in a reagent vessel*
Temporarily stops operation of the unit. Pressing a second time resumes operation			Prints out a stored program
Starts a selected stored staining program			Permanently stops a running program or a manually entered operation
Executes a preset test program			Raises the slide carrier above the reagent vessel
Sets the fluid in motion for internal circulation of the wash fluid*			Moves the slide back one number
Sets the fluid-flow for intake from an external supply through the wash tank, and out the drain*			Moves slide carrier forward one number
Sets temperature of the drying station			Lowere the slide carrier into a reagent vessel
Executes a selected function or command, or inputs data			
Deletes an entry. Is also used in conjunction with other functions			*These functions CANNOT be stored in memory. They must be activated each time you wish to use them.

5.1 TESTING THE FLUID-FLOW

The unit will not operate with a transparent hood raised. Turn on the water supply. With standard laboratory or city water supplies, turn the tap to maximum. The MICROM Stainer is equipped with an accurate fluid-flow regulator that will automatically adjust the flow to the proper rate.

The Power Switch is located near the bottom on the side of the unit opposite the fan. Turn it on. The control panel displays all 8's for about 5 seconds. When the unit is turned on, the robotic arm moves to a standby position. Wait for the robotic arm to come to a full stop.

If you are using an external water supply: press the flow thru key on the control panel. The light on the key lights up. Press the keys on the control panel in the following order: 2, ENTER, ARROW DOWN

The solenoid is activated when you press the arrow down key. The robotic arm lowers into the wash tank (Bath 2). Water then flows into the tank and over the standpipe and out the drain line. Check the drain line to be sure water flow is unobstructed and drainage is adequate. The unit is now in the Flow Through mode. In this mode, fluid enters the unit through the Water-In line, flows through the wash tank, and exits through the drain line.

Next, press the RECIR key. You have converted the Flow Through unit to Recirculating unit. In Recirculate, the fluid in the unit is continuously recirculated through the wash tank.

NOTE! When you first fill the unit you may hear a rattling noise due to air trapped in the regulator. This is normal and does not occur after the fluid begins to circulate.

If you are not using an external water supply: Fill the wash tank (Bath 2) with your wash fluid until it just begins to flow down the standpipe. Press Recir on the Control Panel. When the key button lights up, press the keys on the control panel in the following order: 2, ENTER, ARROW DOWN

The solenoid is activated when you press the ARROW DOWN key. The robotic arm lowers into the wash tank. Observe the fluid height in the tank. As water lines fill and the pump is activated, the fluid level in the wash tank may drop. Add additional wash fluid until the fluid is approximately flush with the tip of the standpipe.

5.2 TESTING UNIT OPERATION

To move the robotic arm from the wash tank, press the ARROW UP key on the Front Control Panel. Wait for the unit to come to a stop. Press TEST followed by ENTER.

The robotic arm is programmed to go to the first station, (Bath 1), pause momentarily above the station and proceed to the next station. (With double sided units, the arm travels from Bath 1 up in sequence, rotates to the opposite side of the unit, and continues to travel up in sequence.)

After the robotic arm has passed over each station it returns to the drying well (Bath 1), where it lowers and pauses momentarily. While the arm is lowered, the dryer and the dryer fan turn on. The robotic arm raises and the test cycle repeats continuously until stopped. Observe the test cycle to ensure that the arm pauses at each station and that the dryer fan is operating. To stop the test cycle, press ABORT followed by ENTER.

5.3 SET THE DRYING WELL TEMPERATURE

The temperature of the air flowing into the drying well can be set anywhere between 25 and 80 degrees Centigrade using the control panel. No other adjustments are necessary. To set the temperature:

- Press TEMP. A flashing display indicates the temperature in degrees Centigrade.
- Use UP ARROW or DOWN ARROW to raise or lower the temperature, or press the numerical keys for a two-digit temperature setting.
- Press ENTER.

The new temperature setting is now permanently programmed in the unit. (Battery power maintains this setting even when the unit is off.)

NOTE! The selected temperature setting controls the temperature of the air entering the drying chamber. The actual temperature in the chamber depends on the number and arrangement of slides in the carrier, the amount and type of fluid on the slides, and other factors. After selecting an initial temperature, observe the drying process to determine whether a different temperature will be more suited to your application.

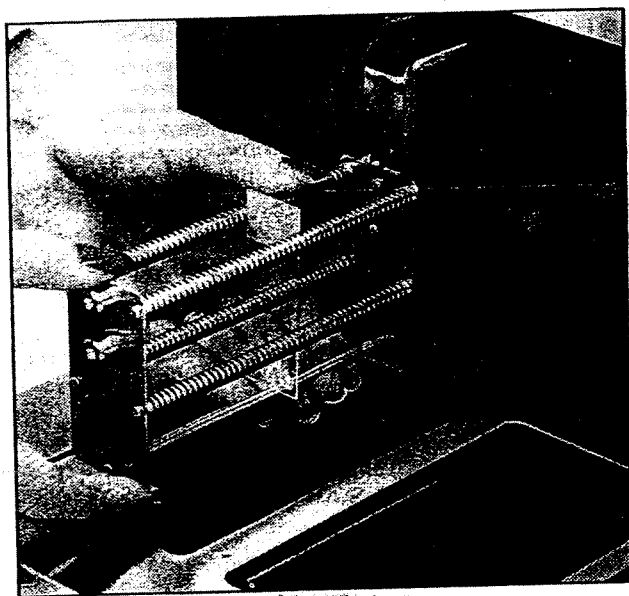
5.4 INSTALL EXHAUST DUCTING (OPTIONAL FEATURE)

Accessory PN 910934 is an exhaust duct that quickly and conveniently attaches to the exhaust fan to route the exhaust to a desired area. Install the ducting following the instructions provided with it.

6.1 LOADING THE SLIDE CARRIER

The slide carrier (basket) has been designed for easy loading and removal of slides. Grasp the carrier with one hand and insert slides straight into the guide slots with the other hand.

To attach the slide basket to the robotic arm, insert the nut-shaped tabs (on either end of the basket) into the slot in the narrow plate extending down from the robotic arm. Gently press downward until the basket is fully seated. Reverse the process to remove the carrier. The slide carrier is stable and can be used to temporarily store slides.



6.2 FILLING THE REAGENT VESSELS

Fill the reagent vessels one at a time. Remove the vessels from the carrier and fill each vessel to the raised fill line on the interior perimeter. Return it to the carrier in the unit.

If you are not ready to begin staining, cover the vessels with the cover plate provided.

NOTE! When the carrier cover is in position, the transparent unit hoods will not fully lower, and the unit cannot be operated.

CAUTION! Do not overfill or underfill the reagent vessels. Overfilling may result in fluid overflowing when slides are immersed, and too little fluid may result in poor stains.

6.3 FUNCTIONAL MODES

The Stainer offers several functional modes.

Manual Mode:

For operating the unit one step at a time.

Run Mode:

For executing your stored staining procedures.

Program Mode:

For writing and storing a program.

Review Mode:

For reviewing a stored program.

Test Mode:

For running the manufacturer's test program.

Remote Mode:

For control and documentation with a personal computer.

The following operational settings are available:

Agitation:

Moves immersed slides up and down in the bath.

Soak:

Causes the slides to remain immersed in the last bath of a program.

Flow Thru:

Fluid flows through the tank and out the drain.

Recirculate:

Fluid is continuously recirculated.

Still-Fluid:

Fluid in wash bath remains motionless.

Temperature:

Sets the temperature in the drying well.

Program Advance:

Advances to the next step in the program.

6.4 MANUAL OPERATION

In the Manual mode, use the keyboard to perform functions one at a time. Manual mode is the default operating mode for the unit. When the Stainer is in any other mode, the indicator light on the appropriate key RUN, PROG, REVIEW, TEST will be lit.

In Manual mode, use the left and right arrow keys to move the slide carrier one station at a time. The up and down keys move the carrier into and out of a staining bath. When in a staining bath, press AGIT for periodic, gentle, up-and-down motion of the slides.

To move the slide carrier directly to a selected bath, press the bath number on the numerical key pad, followed by ENTER.

6.5 PROGRAMMING A STAINING PROCEDURE

All four models of the Stainer permanently store up to nine different programs, containing up to 50 steps each. Using the keyboard, you can create a staining protocol of your choice. A program consists of a series of steps. Each step consists of a bath number, the time of immersion in that bath, and the option to agitate while in the bath. Steps are performed in order of step and bath number.

NOTE! Be sure to document your program. The Stainer allows you to review a program in memory or to print out a written record of the program. You will need documentation to define reagents, and retrieve other data not stored. Keep a good record of these activities.

6.5.1 ENTER THE PROGRAMMING MODE

Press the PROG. key. The word "Code" is displayed. Key in the two-digit access code printed on the removable sticker attached to the inside of the control panel of your unit. Press ENTER. The unit enters the programming mode, and the light on the PROG. key lights.

NOTE! If an incorrect code is entered the unit reverts to the manual mode.

6.5.2 ASSIGN THE PROGRAM ID NUMBER

Each program is stored under its own Program Identifying Number from 1 to 9. After you enter the two-digit access code to get into the programming mode, the display flashes the ID number of the last program accessed.

Press the numerical keys of the Program ID number you wish to assign to your new program. Then press ENTER.

CAUTION! Only one program can be stored under a given Program ID number. When you enter data under a Program ID number that has already been used, the original data will automatically be erased.

6.5.3 SELECT STEP NUMBER 1

After you have assigned the Program ID Number, the number 1 flashes under the Step display. Press ENTER to select Step 1. Always start your program with Step 1.

6.5.4 SELECT BATH NUMBER

After you select the Program ID Number, Prompt brackets, [], appear under the station (bath) display. Enter the bath number you wish to get to under Step 1. Your selected Bath Number will flash on the display. Press ENTER to record it in the program.

Using the CLEAR key: While selecting the bath and time for a step, you can delete the selected time and bath number by pressing CLEAR. The CLEAR key will not allow you to delete the step number. See the section on EDITING A PROGRAM (page 13) to change a step after you have completed the step and advanced to the next step.

6.5.5 AGITATION

Press the AGIT key to have the slides agitate while immersed in this bath. The AGIT key remains lit as long as you are in Step 1. It goes off when you advance to Step 2.

6.5.6 SELECT THE TIME IN THE BATH

Time is entered as a four digit number. After the bath number is selected, prompts [] [], appear in the Minutes and Seconds display. Enter the time you wish the slides to remain in that station, and press ENTER. This records your selected time.

Next the STEP display advances to Step 2. You are now ready to enter the bath number and time for Step 2.

6.5.7 PROGRAMMING THE REMAINING STEPS

When you entered the time for Step 1, the unit automatically advanced to Step 2, and the number 2 flashed on the display. Press ENTER to select Step 2, and program Step 2 using the same method as for Step 1. When you finish Step 2, the step displays flash 3; continue on as before until you have completed entering your program. Remember to press enter after each entry.

6.5.8 END THE PROGRAM

After the last step is entered, press "0" as the bath number. DO NOT PRESS ENTER. Flashing prompts, [], appear in the Bath display to indicate an empty step. Press the PROG. key. This ends the program and returns the unit to the manual mode. Your program is now permanently recorded, until you edit or write over it.

6.6 REVIEWING A STORED PROGRAM

After completing your program, check your entries. From the Manual mode, press REVIEW. The light on the REVIEW key comes on. The number of the last program accessed flashes on the display. To select that program press ENTER. To review another program, press the number of that program and press ENTER.

The display shows Step 1 along with the bath number and time programmed. If the unit is to agitate at that step, the light on the AGIT key will be lit. Press ENTER again to review Step 2, again for Step 3, and so forth. To go down in numbers, press CLEAR. For example, when reviewing Step 5, press CLEAR to go back to review Step 4. Or, you can skip back and forth to specific steps by pressing the step numbers.

Press REVIEW a second time to exit the Review mode.

6.7 EDITING A PROGRAM

To edit a program, enter the programming mode as explained under PROGRAMMING A STAINING PROCEDURE (page 12), and select the Program ID Number of the program you wish to edit.

When editing a program, you can end the program at any time. Enter the number "0" as the Bath number and press PROG.

CAUTION! Do not leave an empty step in your program. Empty steps will be interpreted as the end of your program and stop the procedure at the empty step.

To step through and review the current program, press ENTER repeatedly until you come to the step you wish to edit. Each time you press ENTER, the program steps through to the next sequence.

You may go directly to the step you wish to enter. When the Step Number, flashes on the display, press the key for the step you wish to edit, and press ENTER. The selected step number is displayed. The bath number flashes on the display. If you wish to change the bath number, press the key for the new number, and press ENTER.

To change agitation, press AGIT before completing the edit for that step. If agitation has been selected, the light on the AGIT key is lit.

When the time prompt appears, [] [], you may enter a new time. Key in the time, followed by ENTER. Or, if the time is correct as is, just press ENTER to keep the time the same.

To return to the Manual Mode, press PROG.

CAUTION! Always use the review function to check your editing and programming before conducting a staining procedure.

6.8 RUNNING A PROGRAM

Before running a program, make sure that the drying well temperature and fluid flow selection are correct for your application. See sections on Setting the Temperature and selecting FLUID FLOW (page 23).

To start your program, be sure you are in the Manual mode, and press the RUN key. The ID number of the last program accessed flashed in the display. If this is the program you wish to run, press ENTER. Otherwise, enter the desired Program ID Number and press ENTER.

The number 1 flashes in the Step display. Press ENTER a second time, and your selected program will start at Step 1.

NOTE! To start a program at other than Step 1, press the key for the desired step number when 1 is flashing in the step display. Press ENTER, and the program will start at that step.

7.1 THE SOAK FUNCTION

Pressing the SOAK key at any time while a program is running ends the program with the slide carrier in the down (immersed) position. The display reads "Dip" when this function has been selected. Press CLEAR to deactivate SOAK. The Soak function cannot be included as part of a program. It is intended only for occasional use. For example, you can use it to keep slides wet in your absence after a program has stopped running.

NOTE! The soak function can only be used in the last step of the program.

7.2 STOPPING A PROGRAM OR OPERATION

A program or operation may be stopped temporarily by using the PAUSE key, or permanently by using the ABORT key.

PAUSE:

You can temporarily stop an operation by pressing the PAUSE key. The unit will stop where it is, in both the Manual and Run modes. Press the PAUSE key again to restart the unit.

ABORT:

To completely stop a program press the ABORT key and then ENTER. The unit will complete the preset operation and stop. If you were running a program, the unit will leave the program and return to the manual mode.

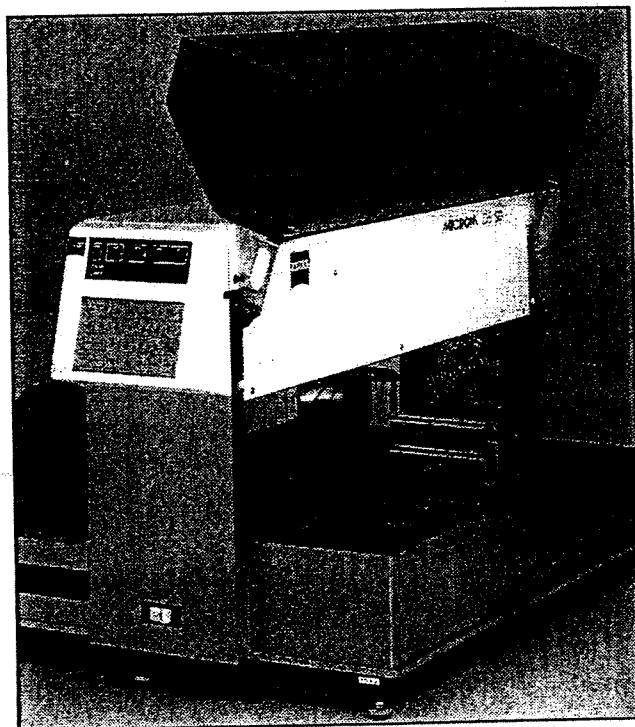
7.3 PROGRAM ADVANCE

When operating a pre-programmed procedure (in the Run mode), you can interrupt a presently operating step and skip forward to a new step. Press the CLEAR key once to interrupt the present operation and to advance the display to the next step in your program. Pressing the CLEAR key again advances the program another step. The slide carrier skips forward in its program and executes the step you advanced to, as shown on the display.

CAUTION! Do not hit the CLEAR key while a program is operating unless you wish to skip a step in the program.

7.4 SAFETY INTERLOCK

The Stainer is fitted with a safety interlock that prevents the unit from operating when a hood is lifted. Lifting a hood in the middle of an operation or program has the same effect as pressing the PAUSE key. The unit will resume operation when the hood is lowered back into place.



7.5 AGITATION

For both manual and programmed operation you may select "Agitation" while the slides are immersed in the well. When this function is active, the AGIT key is lit. The slide carrier moves gently up and down, approximately once every five seconds to enhance washing or staining.

This feature does not operate in the drying well. (Bath 1).

7.6 DRYING WELL TEMPERATURE CONTROL

The temperature of the air flowing into the drying well can be set anywhere between 25° and 80° Centigrade. The temperature is set using only the control panel. To set the temperature:

- Press TEMP - a flashing display indicates the temperature in degrees Centigrade.
- Use ARROW UP or ARROW DOWN to step through to the desired temperature, or press keys for a two-digit temperature setting.
- Press ENTER

The new temperature setting is now permanently programmed in the unit.

NOTE! The temperature setting controls the temperature of the air entering the drying chamber. The actual temperature in the chamber will vary depending on the number and arrangement of slides in the carrier, the amount and type of fluid on the slides and other factors. After selecting an initial temperature, observe the drying process to determine whether a different temperature will be more suited to your application.

7.7 FLUID FLOW

There are three keyboard options for fluid flow: Recirculate, Flow-Through and Still-Fluid.

In the Flow-Through mode, fluid from your water supply runs in through the Water-In Line, through a regulator, through the wash tank, and out the drain line to your drain. Supply pressure from your water supply is controlled by the automatic regulator within the Stainer. Adjustments to your supply line should not be required.

In the Recirculate mode, up to 1,800 ml of fluid is continuously recirculated through the internal fluid system. To fill the wash tank with a special wash fluid for use in the Recirculation mode, first drain the wash tank. See section on MAINTENANCE (page 19.) Add your wash fluid by pouring the fluid into the tank until it overflows the standpipe drain.

In the Still-Fluid mode there is no flow or circulation in the wash tank.

You can switch among fluid-flow options at the keyboard. After you choose a mode (other than "Still"), fluid begins flowing through the wash tank (Bath 2) as the slide carrier approaches the wash tank. It stops approximately 3 minutes after the carrier leaves the wash tank.

To operate in the Flow-Through mode, check the front panel. If the light on the FLOW THRU key is off, press FLOW THRU. The FLOW THRU key will light up and the unit will operate in the Flow-Through mode.

To operate in the Recirculate mode, check the front panel. If the light on the RECIR key is off, press RECIR. The RECIR key will light up and the unit will operate in the Recirculate mode.

To operate in the Still-Fluid mode, the lights on both the FLOW THRU and RECIR keys must be turned OFF. To turn these keys off, simply press each key until the light is off.

A summary of fluid flow options and key status:

FLUID FLOW OPERATION	FLOW THRU KEY	RECIR KEY
Flow through Operation	On	Off
Captive Circulation	Off	On
Still Bath	Off	Off

CAUTION! When operating in the recirculation mode, the drain line should be routed to your waste sink. Some fluid may run out the drain when the tank is first filled, and more fluid will run out when slides are immersed in the wash tank.

7.8 PRINTING RECORDS

Proper record keeping is important. The Stainer enables you to easily and quickly print out a stored program.

7.9 SETTING THE PRINTER BAUD RATE

Any program stored in the Stainer's memory can be printed for verification or as a written record. To print, connect a printer to your unit and press PRINT. The most recently accessed program number will flash. If it is acceptable, press ENTER. Or, enter another number followed by ENTER.

The Stainers work with most serial printers. Consult your printer manual to determine the proper printer settings and connections. The following are some specifications:

Printer Cable:
RS232 cable with DB 25 connector

Baud Rate:
Selectable, see below

Data Format:
8 Bit ASCII, no parity

Stainer Pin Assignments:
Pin 2: Data from Stainer to printer
Pin 7: Ground

The printer connector is located beneath the exhaust fan. Select the baud rate for your printer by pressing PRINT, followed by PROG. Use the arrow keys to select among the following baud rates: 300, 600, 1200, 2400, 4800, and 9600. Press the ENTER and the selected baud rate is permanently stored in the Stainer memory.

7.10 EXHAUST SYSTEM

The Stainer incorporates transparent hoods as standard equipment. These covers help protect staining reagents from contamination and help reduce the emission of solvents into the laboratory area.

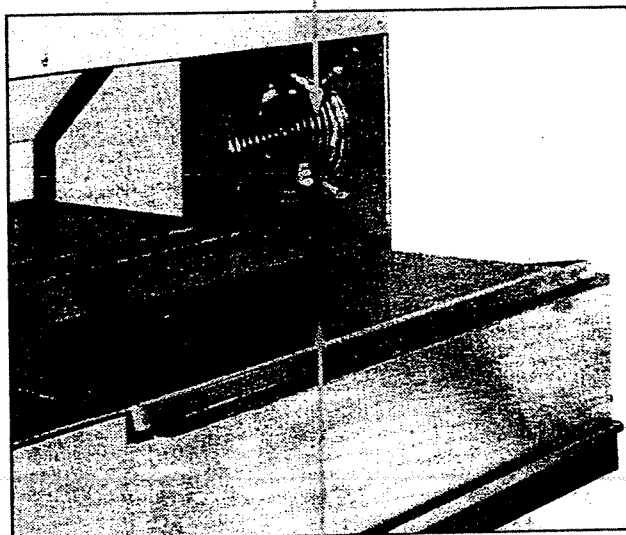
In addition to the transparent containment covers, there is an exhaust fan on one end of the unit. Accessory PN 900934 can be attached easily to the exterior of the exhaust fan to duct exhaust into a hood or other authorized area. See your Zeiss representative for price and availability.

7.11 CARRIER COVER

The Stainer includes a standard carrier cover that fits over the staining vessels to reduce evaporation and contamination of the reagents. When the cover is in place, the transparent hoods will not fully close, and the unit will not operate. This is to prevent accidental operation while the cover is in place.

The Stainers are simple to operate and maintain. All the sensitive electronics are housed above the fluid level to reduce the likelihood of damage from spills or contamination.

Exhaust System



Carrier Cover

7.12 POWER INTERRUPT ALARM

The Stainer has been equipped with two quality assurance features. The Power Interrupt Alarm notifies the operator in the event of a power interruption or failure while a program is running. Insures that a temporary power outage while the operator is not present will not go undetected and will not alter the programmed sequence.

THIS ALARM OPERATES ONLY WHEN THE STAINER IS IN PROGRAM MODE.

IN THE EVENT POWER IS INTERRUPTED FOR ANY REASON:

1. A rapid beeping begins and continues for 15 minutes, even if power is returned.

WHEN POWER RETURNS:

1. The Robotic Arm moves over Bath #1 (dryer well).
2. Control Module indicators and display flash for a few seconds.
3. Display flashing stops. The Step and Bath number in effect at the time power was interrupted appear on the numerical display.

TO RESET THE UNIT AND CONTINUE THE PROGRAM:

1. Make a note of the Bath and Step numbers displayed on the numerical indicator.
2. Press CLEAR on the Control Module. This stops the alarm if it was still sounding and clears all functions.
3. Follow the instructions in the note Section 6.8 of the User's Manual to restart the program beginning with the step at which the power failed.

7.13 OBSTRUCTION FAIL SAFE

The Stainer has been equipped with a fail-safe mechanism that stops the Robotic Arm when an obstruction blocks its downward motion.

THIS FEATURE OPERATES IN BOTH THE MANUAL AND PROGRAM MODES.

IN THE EVENT OF A BLOCKAGE THE FOLLOWING HAPPENS:

1. Robotic Arm will stop and remain at rest for approximately 5 seconds.
2. Robotic Arm will again attempt to lower into the designated bath.

IF THE OBSTRUCTION REMAINS:

1. The Robotic Arm will stop a second time and remain stopped.
2. After 5 seconds a beeping alarm will sound.

TO RESTART:

1. Remove obstruction.
2. Press CLEAR on the Control Module and operation will continue from where interrupted.

8.1 ROUTINE CLEANING

CAUTION! Turn the power off and unplug the unit while cleaning.

For daily cleaning, remove the reagent vessel carrier. This gives you access to the lower surfaces of the unit. These surfaces are stainless steel and can be cleaned with strong detergent or organic solvents. Do not use strong acids or bases which may corrode the stainless steel.

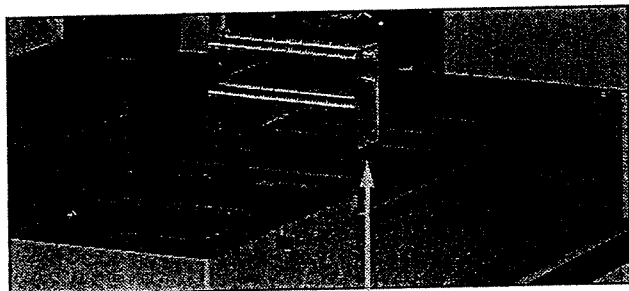
You may flush the lower surfaces of the unit with water. Do not flush the interior with strong acids or bases, organic solvents, or strong detergents. These substances will gradually corrode the plumbing and fluid control mechanisms in this area and damage the unit.

The reagent carrier is made of stainless steel and should be cleaned with strong detergent or organic solvents.

The reagent vessels are made of polyphenylene sulfide (PPS) ryton and can be cleaned with most detergents.

The transparent containment hood is made of high quality acrylic and can be cleaned with water and mild detergents.

NOTE! Wash the tank and drain tube once per week with 10% bleach, followed by a flow through rinse 3-5 minutes.



Removable Reagent Vessel with Carrier

8.2 DRAINING THE FLUID TANK

To drain the fluid tank, remove the standpipe drain in the tank by twisting it and lifting upward. A sponge or other absorbent material can be used to remove any residual fluid that does not drain out of the tank. To replace the standpipe, press it back down into its receptacle with a twisting motion. Make sure it is securely seated.

8.3 SERVICE AND SALES SUPPORT

For technical or sales information, or for the location of the authorized Zeiss representative in your area, please call or write:

Customer Service - Microscope Division
Carl Zeiss, Inc., One Zeiss Drive,
Thornwood, New York 10594
Tel. (800) 233-2343

8.4 CARL ZEISS, INC. LIMITED WARRANTY

Carl Zeiss, Inc. (the Company), warrants to the original purchaser of this product that should this product or any part thereof be proven defective in material or workmanship within 12 months from the date of installation (or delivery if not installed by an authorized Zeiss agent), such defect will be repaired or replaced without charge for parts, labor, or travel. This warranty does not apply to any product or part thereof which has been damaged through alteration, mishandling, misuse, neglect or accident.

Any internal adjustments or modification without the consent of Carl Zeiss, Inc., will void this warranty.

This warranty is in lieu of all other warranties, expressed or implied, and no person or representative is authorized to assume for the company any other liability in connection with the sale of the product.

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