

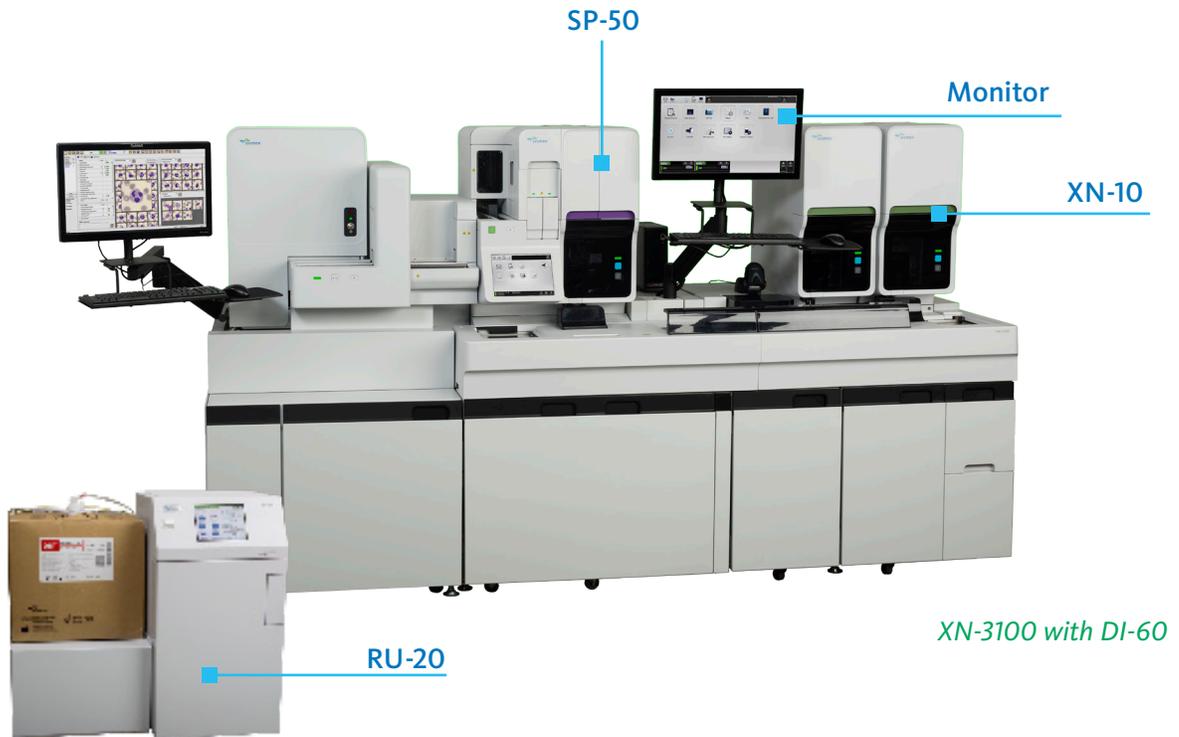


BEYOND A BETTER BOX™

XN-3100™
AUTOMATED HEMATOLOGY SYSTEMS
SCALABLE AUTOMATION
QUICK GUIDE

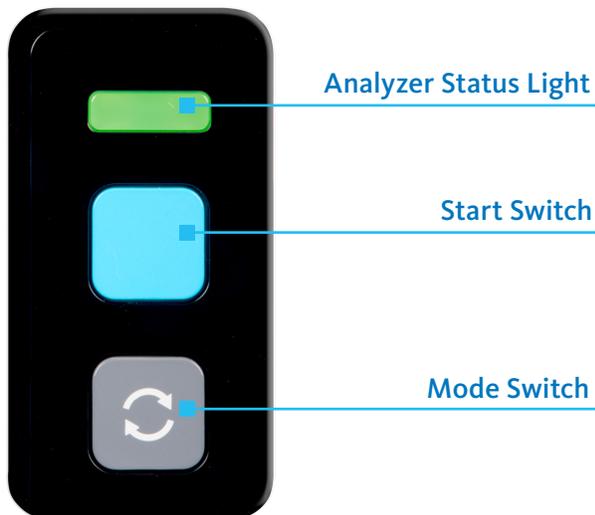


XN-3100 — SYSTEM OVERVIEW



XN-3100 with DI-60

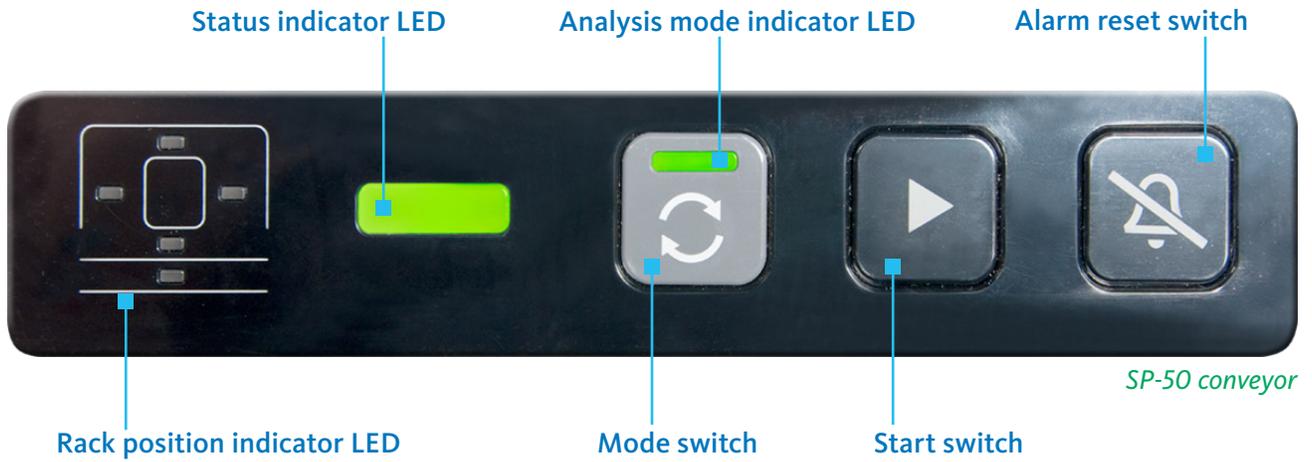
- XN-10: Hematology testing system that will do CBC+NRBC with impedance PLT, WBC Differential, Body Fluid analysis with 2-part differential, Retic with RET-He, and PLT-F with IPF.
- SP-50: Prepares and stains blood smears
- RU-20: Reagent Preparation Unit. Using instrument feed water (Type II) and CELLPACK DST, the RU-20 will supply CELLPACK to a maximum of 2 XN-10's.
- Touch Screen Monitor: Connected to the XN-IPU (A single XN-IPU controls both XN-10's)



Front of XN-10 module



IPU power button



Analyzer area on the control menu



XN-3100 — SYSTEM START UP AND QC

Pre-operation (SP-50™)

1. Verify there are a minimum of 2 magazines in the feed out table
2. Verify there are enough slide glasses for the daily volume
3. If used, verify the waste containers are at an acceptable level, empty if necessary

System Start-up

1. Press and release the green master start-up switch on the sampler unit
 - b. The status indicator LED on the sampler unit will flash green
 - c. The XN-IPU will automatically turn on
 - d. The SP-50 will begin start-up
 - e. Each XN analyzer will turn on and begin start-up
2. The XN software will display the logon screen
 - a. Type “admin” for the Username
 - b. Type “m116m” for the Password
 - c. Touch [OK]

Quality Control (XN CHECK™): System Mode

1. Bring the XN CHECK to room temperature by letting it sit for 15 minutes
2. Mix the XN CHECK by gentle end-to-end inversion (do this at least 20 times, or until the cell button is suspended)
3. Load all three levels of XN CHECK into a Special Rack for Quality Control (Red Stripe)
4. Place the rack on the feeder section of the start yard
NOTE: The XN-9100 will automatically process the XN CHECK controls on all connected XN analyzers and return the rack to the collector stock yard after processing

QC Result Review: Radar Charts

1. From the main menu, touch [QC Files]
2. Use the tabs near the bottom of the screen to select the analyzer (XN-3100-L or XN-3100-R)
3. Select a QC File
 - The Radar Charts for the most recent run of QC will be displayed along the right edge of the screen

QC Result Review: L-J Charts

1. From the main menu, touch [QC Files]
2. Use the tabs near the bottom of the screen to select the analyzer (XN-3100-L or XN-3100-R)
3. Select a QC File
4. From the QC menu, touch [QC Chart]
 - The L-J Charts will display for the selected QC File

BODY FLUID QC

Quality Control (XN CHECK™ BF) Manual Mode Processing

1. Bring the XN CHECK BF to room temperature for 15 minutes
2. Make sure the analyzer is in the 'Ready' state
3. If the tube holder has not ejected out, press the mode switch
4. Touch the [Change Analysis Mode] button in the analyzer area
5. Select Body Fluid
6. Touch [OK] (Wait for the BF BACKGROUNDCHECK to complete)
7. Mix the XN CHECK BF by gentle end-to-end inversion (approximately 20 times, or until the cell button is suspended)
8. Place a well mixed vial of XN CHECK BF in the sample tube holder
9. Touch the [Manual Analysis] button in the analyzer area
10. Confirm that 'Read ID' is checked
11. Confirm that 'Cap Open' is unchecked
12. Touch [OK]
13. Press the start switch
14. After aspiration, the tube holder will slide out. Remove the vial of XN CHECK BF

Return to Whole Blood (WB) Mode

1. Touch the [Change Analysis Mode] button
2. Select [Whole Blood]
3. Touch [OK]

NOTE: It is recommended to put the system back into [WB] mode after using [BF], [PD], or [Low WBC].

XN-3100 — SAMPLE PROCESSING

Processing Whole Blood Samples: Sampler or System Mode

1. Verify that the sampler is in the Ready state
2. Load samples in the rack
3. Place the rack on the right rack pool
4. Remove completed racks from the SP-50 rack pool

NOTE: **DO NOT** remove racks or samples that are being processed by the system

STAT Sample Analysis

NOTE: This procedure can be used to interrupt the XN analyzer in System Mode so a STAT sample can be processed in the Manual Mode

1. Press the [Mode Switch] button (do not touch the rack in process)
2. Wait for the sample tube holder to slide out and a solid green analyzer status light
3. Process the STAT sample using the Manual Mode
4. Press the [Mode Switch] button when done processing STATs
5. Sampler Mode will resume where it left off in the rack

Processing Whole Blood Samples: Manual Mode

1. Press the [Mode Switch] button on the analyzer
2. Make sure the analyzer is in the 'Ready' state
3. Touch the [Manual Analysis] button on the control menu
4. Confirm that 'Read ID' is checked, or uncheck 'Read ID' to enter the sample ID manually or scan with the hand-held barcode reader
5. Select the discrete tests, or use host query
6. If needed, place a check-mark next to 'Cap Open'
7. Touch [OK]
8. Mix the sample according to your laboratory protocol for processing patient whole blood specimens
9. Place the tube in the appropriate sample tube holder
10. Press the start switch
 - a. After aspiration, the tube holder will slide out. Remove the sample
 - b. Press the [Mode Switch] button to return to Sampler Mode

Manual Mode: Low WBC, Body Fluid, Pre-Dilute

1. Press the [Mode Switch] button on the analyzer
2. Touch the [Change Analysis Mode] button
3. Select [Low WBC], [Body Fluid], or [Pre-Dilute]
4. Touch [OK]
 - Go to Step 3 of the Processing Whole Blood Samples: Manual Mode procedure above to process samples in a secondary manual mode
 - Refer to Return to Whole Blood (WB) Mode on page 5 of this Quick Guide to exit these secondary manual modes

REAGENT REPLACEMENT

Reagent Replacement: Replace a New Dilution/Hemolytic Agent

1. The 'Help' dialog box will appear when the system detects an empty/expired reagent container
2. Read the error message to determine which reagent is empty, then touch [Execute]
3. Verify that 'CAPS LOCK' is off
4. Touch the name of the reagent to be replaced, place a checkmark next to 'Replace the reagent,' then place the cursor in the reagent code text box
5. Using the hand-held reader, scan the reagent code on the new reagent container
6. Touch [OK]
7. Open the cap on the new container
8. Remove the cap from the expired/empty container and carefully remove the spout
9. Insert the spout straight into the new container
10. Tighten the cap on the new container, and move container into position
Note: If multiple reagents require changing, return to Step 4
11. Touch [Execute] from the 'Reagent Replacement' dialog box
12. The new reagent is primed into both analyzers and the change is recorded in their respective reagent logs

Reagent Replacement: Replace a New Dye

1. The 'Help' dialog box will appear when the system detects an empty/expired reagent container
2. Read the error message to determine which reagent is empty, then touch [Execute]
3. Open the top front cover of the analyzer
4. Pull up the cover for the dye cartridge that is to be replaced
5. Remove the old dye cartridge from its holder, and discard
6. Install the new dye cartridge into the holder
 - a. Verify the reagent label and color match
 - b. The analyzer will beep as the information is automatically registered
 - c. Pull down the cover until it "clicks"
 - d. Reagent replacement will begin automatically. When complete, the dialog box will close
7. Close the top front cover of the analyzer

Reagent Replacement: Replace With New CELLPACK™ DST

1. Touch the [RU menu] button
2. Touch [Maintenance]
3. Touch [Replace Reagent]
4. In the 'Replace Reagent' dialog box, scan the reagent code on the new container of CELLPACK DST.
5. Remove the cap from the new reagent container
6. Remove the cap from the old reagent container
7. Pull the dispensing set straight up
8. Insert the dispensing set straight into the new reagent container
9. Close the cap
10. Touch [Execute]

XN-3100 — SAMPLE EXPLORER & SHUTDOWN

Sample Explorer: Find*

1. Touch [Explorer] on the toolbar
2. Touch [Find] on the toolbar
3. Enter the search criteria
4. Touch [Prev.] or [Next] to search the Sample Explorer database
5. Touch [Close] when the sample is located

Sample Explorer: Modify Sample ID*

1. Touch [Explorer] on the toolbar
2. Select the sample to be modified
3. Touch [Validate] (Samples with Validated status cannot be modified)
4. Touch [Modify] on the toolbar
5. Enter the correct sample information
6. Touch [OK]
7. Touch [Validate] on the toolbar

Sample Explorer: Reprint to Graphic Printer (GP)*

1. Touch [Explorer] on the toolbar
2. Select the sample to be printed
3. Touch [Output] on the toolbar
4. Select [Report GP]

Sample Explorer: Retransmit to Host (HC)*

1. Touch [Explorer] on the toolbar
2. Select the sample to be sent to the LIS
3. Touch [Output] on the toolbar
4. Select [Host Computer (HC)]

**These functions require that the Last 20 filter is disabled*

DAILY MAINTENANCE

Shutdown

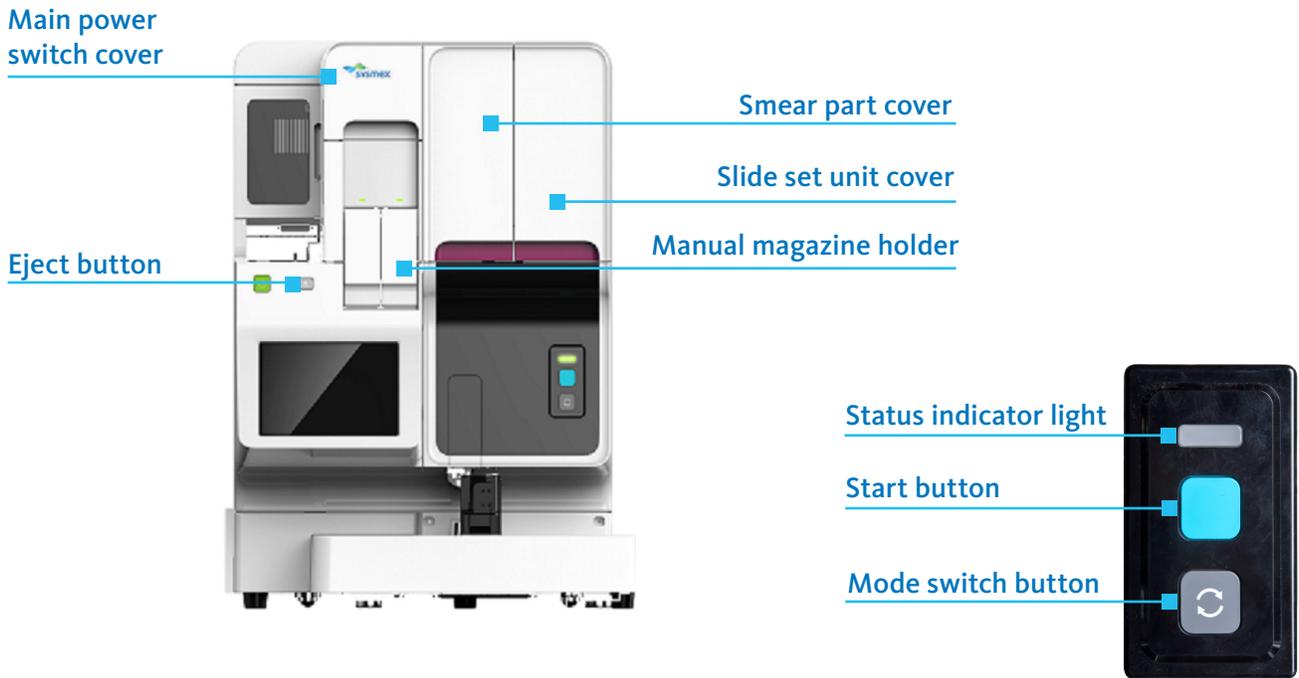
1. Make sure that the analyzer and the sampler are in the READY state.
2. Make sure that the tube holder is retracted into the analyzer.
3. Place a tube of CELLCLEAN AUTO in positions 9 and 10 of a rack for the XN analyzers. Place a tube of CELLCLEAN AUTO in position 8 of a separate rack for the SP-50.
4. Place the rack in the right sampler pool and the sampler starts automatically.
5. Once the barcode is read, Shutdown is performed automatically.
6. Shutdown takes approximately 15 minutes to complete, then the system powers off.
7. Follow the steps on page 4 to perform Start-up.

NOTE: No other samples will be accepted once Shutdown begins.

SP-50 — SPECIFICATIONS

Parts Overview

The SP-50 is an automated slidemaker stainer that can be operated as a standalone or as part of XN-automation.



SP-50 — START-UP & SOFTWARE OVERVIEW

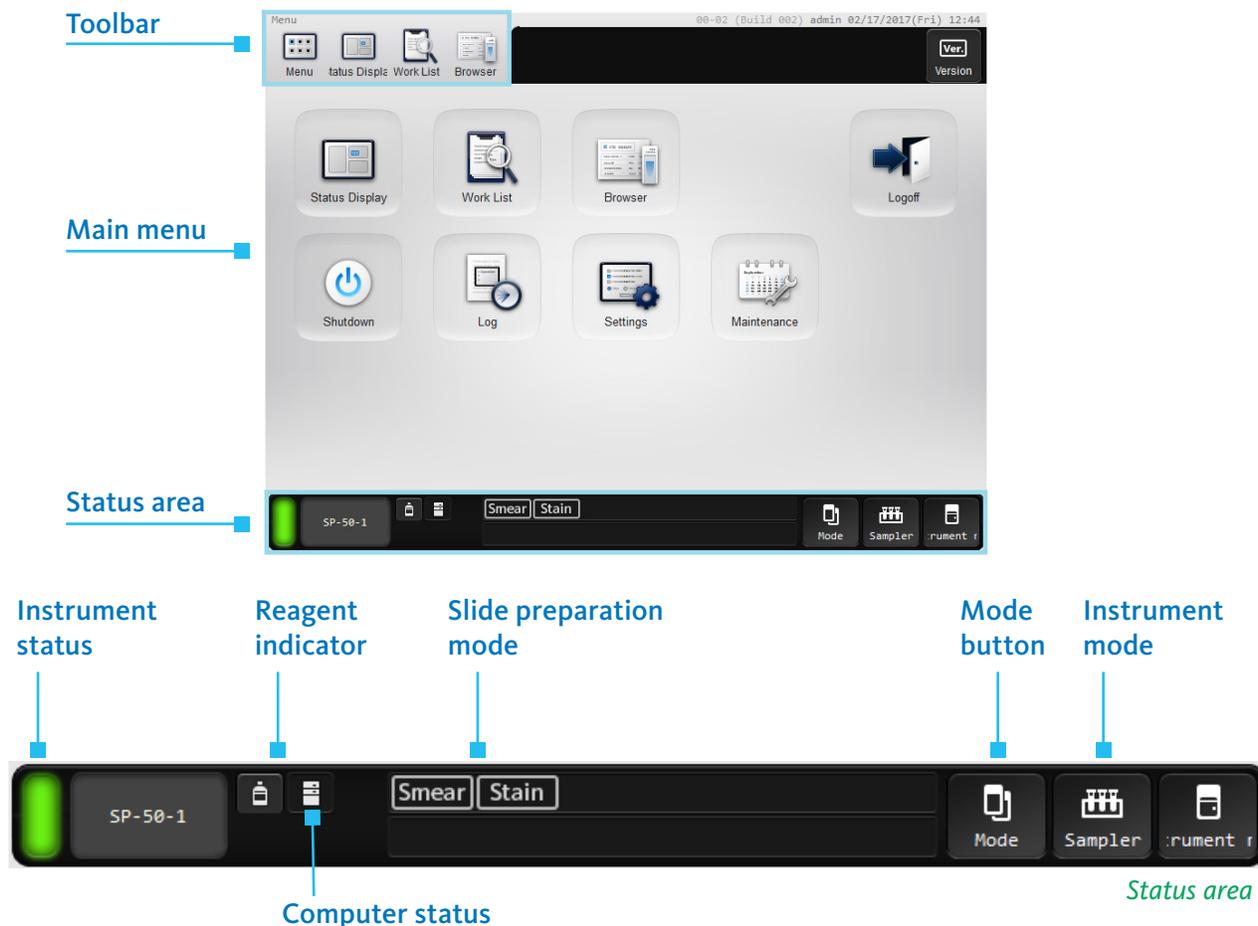
Start-up

- Make sure the main power switch to the analyzer is in the ON position
- Verify there are a minimum of 2 magazines in the feed out table
- Verify there are enough glass slides for the daily volume
- If used, verify the waste containers are at an acceptable level; empty if necessary
- Make sure that there are no racks on the measurement line of the sampler

1. Press the Power button.
2. Touch the name of the user to be logged on.
3. Enter the password and touch [OK].

NOTE: Once the power on the instrument turns ON, a self-check automatically runs. The self-check consists of: initialization of the mechanical units, rinsing the hydraulic unit, and replenishment of reagent.

Software Overview



SOFTWARE OVERVIEW

Worklist

Worklist is a repository of smears prepared by the instrument.

Registering a New Slide Preparation Order

This procedure may be rarely utilized on the XN-3100, as slide orders are typically generated based on settings and rules.

1. Touch [Work List] in the 'Menu' screen or touch [Work List] on the toolbar.
2. Touch [Order] on the toolbar and touch [Regist Order].
3. Enter the order information.
4. Touch [Continuous Registration] to continue registering orders.
5. Touch [OK].

Editing a Slide Preparation Order

1. Touch [Work List] in the 'Menu' screen or touch [Work List] on the toolbar.
2. Select the order that you want to edit in the order list.
3. Touch [Order] on the toolbar and touch [Modify Order].
4. Touch the item you want to modify and modify the item.
5. Touch [OK].

Searching for Slide Preparation Orders

You can search for an order with Sample No., Rack No., Print, or Date of slide preparation.

1. Touch [Work List] in the 'Menu' screen or touch [Work List] on the toolbar.
2. Touch [Find] on the toolbar
3. Enter the search conditions.
4. Touch [PREV.] or [NEXT] to review the selected samples.
5. Touch [Close].

Checking the Status of Smear Currently Being Prepared

1. Select the order of the smear you want to check in the 'Work List' screen.
2. Touch [Status Display] on the toolbar.
3. Touch [Display selection] on the toolbar and touch [Top view]/[Display process].
4. Check the status of the smear.

SP-50 — SOFTWARE OVERVIEW

Status Display

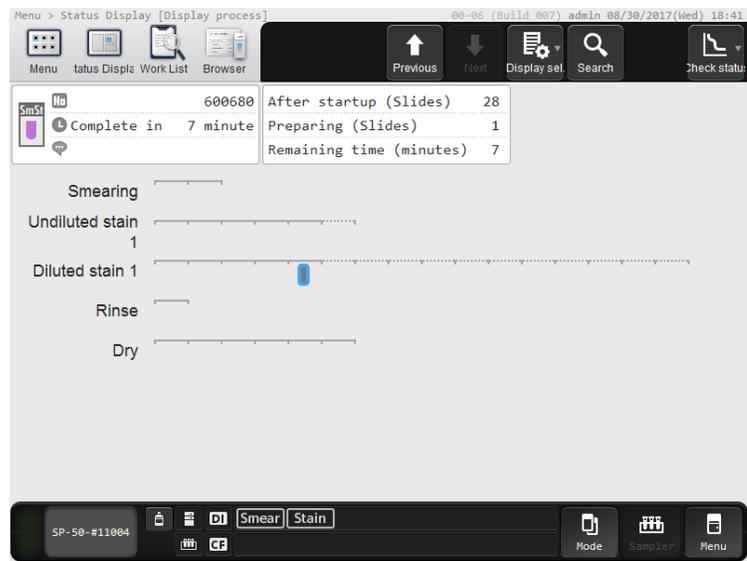
Touch [Status Display] in the 'Menu' screen to display the 'Status Display' screen. You can also touch [Status Display] on the toolbar to display the screen. In the 'Status Display' screen, you can check the status of smear preparation and whether an error has occurred on the instrument.

Toggle between the views:

- Display Process
- Top View

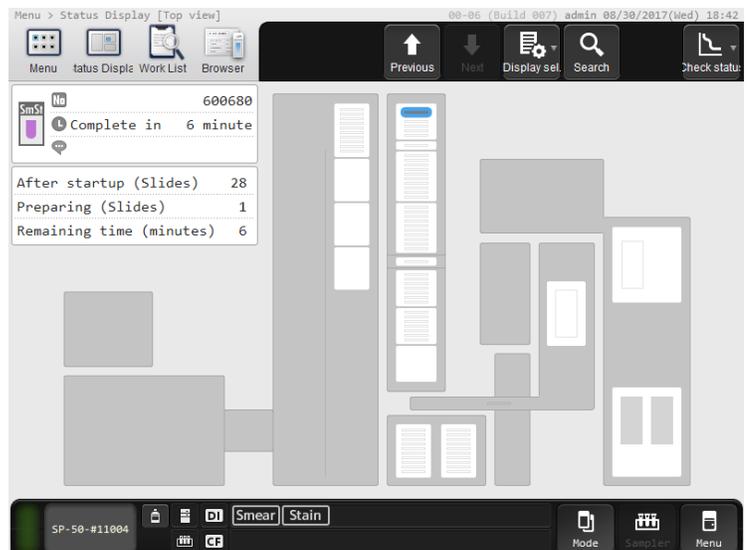
Display Process

This shows the progress of smear preparation in each process.



Top View

Displays the instrument status, current smear position, and other information by block in top view.



Check Status

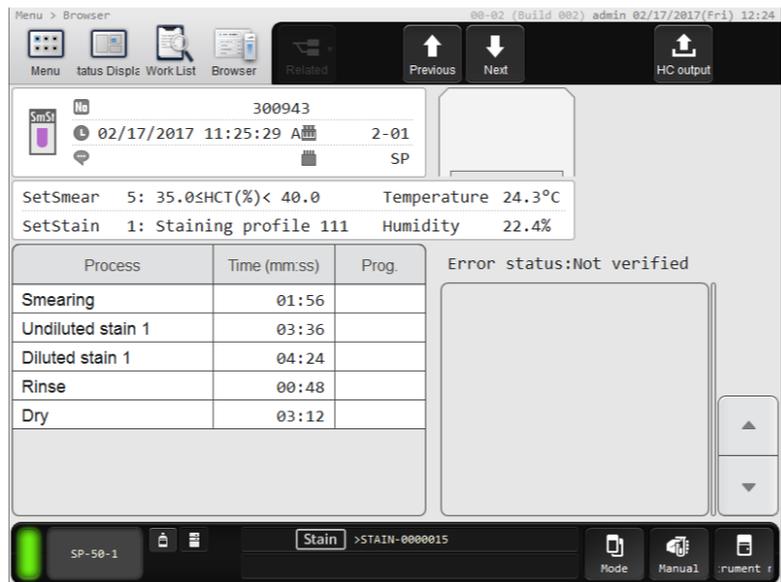
Touch to display a submenu, which allows you to check the instrument status.

- Sensor- Touch to confirm the status of the units in the instrument.
- Pressure/Temperature/Humidity - Touch to confirm the internal pressure, temperature and humidity status of the instrument.
- Elapsed staining time - Touch to check the elapsed time since startup or replacing reagent in the staining pool.
 1. Touch [Maintenance] in the 'Menu' screen.
 2. Touch [Check status].
 - Touch [Sensor]; or
 - Touch [Pressure/Temperature/Humidity]; or
 - Touch [Elapsed staining time].
 3. Touch [Close].

Checking Details of Slide Preparation Orders

Touch [Browser] in the 'Menu' screen to display the 'Browser' screen. You can also touch [Browser] on the toolbar to display the screen.

1. Select the order you want to check in the 'Work List' screen.
2. Touch [Browser] on the toolbar.
3. Check the details.



SP-50 — SMEAR PREPARATION

Changing the Display of Information in the Order List (Display Settings)

You can change the order of display of the order list, and filter the order list to only display orders that match specified conditions. You can also change the items displayed in the order list.

1. Touch [Settings] in the sub-menu of [Display] on the toolbar.
2. Change [Name] appropriately for the conditions to be changed.
3. Change the sort conditions.
4. Touch the [Filter Condition] tab.
5. Set a filter condition. To enable the filter setting, select the checkbox at the left.
6. Touch [OK].

Filter items	Conditions	Description
[Date]	[Today] / [Yesterday] / [Day before Yesterday] / [Specify Range]	You can filter the list by specifying [Date] when the order was registered. If [Specify Range] is selected, a dialog box appears. Enter the range and touch [OK].
[Operation Mode]	[Manual] / [Sampler]	You can filter the list by specifying the preparation type. Select [Manual] for manual preparation, and select [Sampler] for sampler preparation.
[Preparation Mode]	[Smearing and staining] / [Smearing] / [Dyeing] / [Print]	You can filter the list by specifying the slide preparation mode.
[Status]	[Not prepared] / [Preparing] / [OK] / [Error (low reliability)] / [Error (Abort)]	You can filter the list by specifying the order [Status].
[Error]	[All errors] / [Unchecked error] / [Checked error]	You can filter the list by specifying the error confirmation status. If you want to show all orders that have an error regardless of the confirmation status, specify [All errors].
[Alarm]	[Exists]	Displays the order for which the alarm is enabled when the sample preparation process completes.

Sample Requirements

The table below outlines the sample requirements for the different sample tubes and slide preparation modes.

Slide prep	Sample tube	Cap	Position	Required volume	Aspirated volume
Sampler preparation	Regular sample tube	With cap	Sample rack	500 µL	70 µL
Manual preparation	Regular sample tube	With cap	Regular tube holder	500 µL	70 µL
	Regular sample tube	Without cap	Regular tube holder	300 µL	38 µL
	Raised Bottom tube	With cap	Regular tube holder	250 µL	70 µL
	Micro collection tube	Without cap	Micro tube holder	110 µL	38 µL

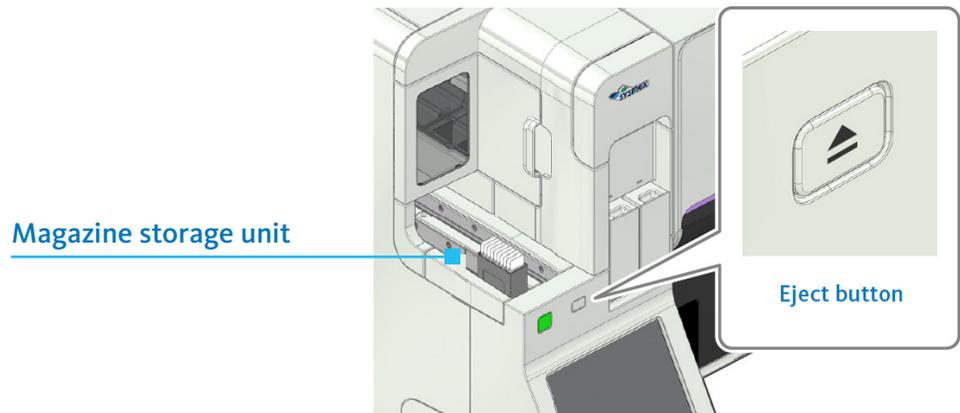
Slide Preparation Modes

Slide prep mode	Description
[Smearing and staining] mode	Use this mode when you want to print sample information on the glass slide and perform sample smear preparation and staining.
[Smearing] mode	Use this mode when you want to print sample information on the glass slide and only prepare the smear, without staining.
[Staining] mode	Use this mode when you want to stain a smear that was prepared manually, or a sample for which only [Smearing] mode was performed.
[Print] mode	Use this mode when you only want to print sample information on the glass slide. No smear will be performed.

SP-50 — SMEAR PREPARATION

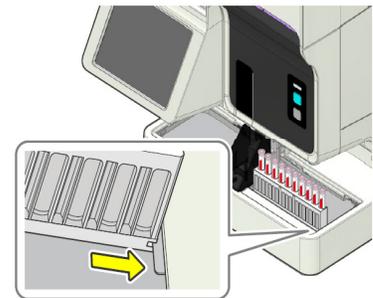
Smear Preparation Modes - Sampler & Manual

NOTE: The magazines are ejected to the magazine storage unit after a pre-set amount of time or after the magazine is filled with stained smears. Magazines can be ejected on-demand by pressing the [Eject] button on the front of the unit.



Sampler Mode - Smear & Stain

1. Confirm that the instrument is in the standby state.
2. Make sure that the sample tube holder is retracted into the main unit. If the sample tube holder is ejected, press the [Mode Switch] button on the front of the main unit.
3. To change the slide preparation mode, touch [Select mode].
4. Touch [Smearing and staining] or [Smearing].
5. Touch [OK].
6. Place the sample rack containing the sample tubes in the right sampler pool.
7. Touch [Sampler], then touch [OK].
8. Remove the sample rack from the left sampler pool.
9. The prepared smears will be loaded into the magazine. When preparation of all smears is completed, the magazine containing the smears is ejected to the storage location for the slide preparation mode used.
Retrieve the magazine that contains the smears.
 - In [Smearing and dyeing] mode, the magazine is fed out to the magazine storage unit.
 - In [Smearing] mode, the magazine is fed out to the manual magazine holder.



CAUTION: Running RBT samples in Sampler mode

- For standalone SP-50 analyzers, Raised Bottom Tubes (RBT) can **only** be processed in the Manual Mode. **Do NOT** place RBT samples in the rack with regular sample tubes to run in the Sampler Mode.
- If the SP-50 is part of an automated system (XN-3100/XN-9100), you **must** use the designated RBT rack when processing RBT samples in the Sampler Mode.

Manual Modes

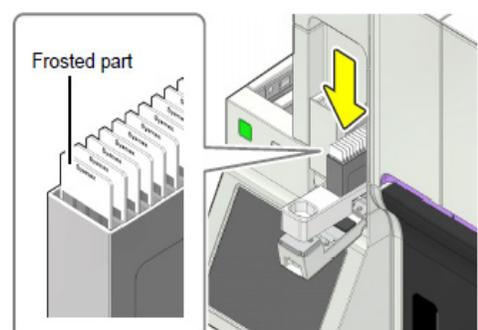
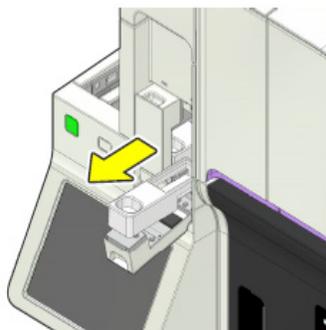
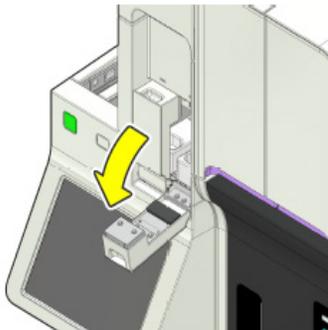
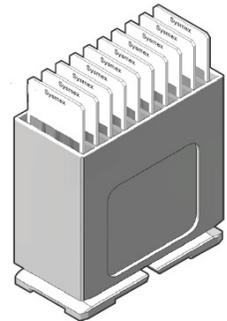
In the following cases, prepare the smear manually.

- When you want to interrupt sampler preparation for an urgent sample
- When you want to prepare a smear using a regular sample tube, micro collection sample tube or Raised Bottom Tube
- When you only want to stain an already-prepared smear
- When you only want to print sample information on the glass slide

Manual Mode - Stain Only

Use this mode when you only want to stain an already-prepared smear

1. If the sample tube holder has not been ejected, press the [Mode Switch] button on the front of the main unit.
2. To change the slide preparation mode, touch [Select mode].
3. Touch [Staining].
4. Touch [OK].
5. Open the manual magazine holder cover.
6. Pull out the manual magazine holder.
7. Load smeared glass slides into an empty magazine, with the frosted side facing the front.
8. Load the magazine that holds the glass slide into the manual magazine holder.
9. Push in the manual magazine holder, then close the manual magazine holder cover.
10. Ensure the status display LED of manual magazine holder is green.
11. Press the [Start] button on the front of the main unit.
12. For additional smears, follow steps 5 - 11, using the other manual magazine holder.
13. To return to sampler mode processing, press the [Mode Switch] button on the front of the main unit.
14. The prepared smears will be loaded into the magazine. When preparation of all smears is completed, the magazine containing the smears is ejected to the storage location for the slide preparation mode used. Retrieve the magazine that contains the smears.
 - In [Smearing and dyeing] mode, the magazine is fed out to the magazine storage unit.
 - In [Smearing] mode, the magazine is fed out to the manual magazine holder.



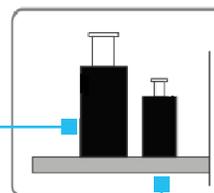
SP-50 — SMEAR PREPARATION

Manual Mode - Smear & Stain

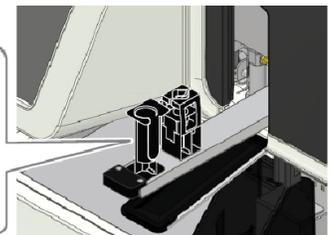
Use this mode for the following cases:

- When you want to interrupt sampler preparation for an urgent sample
 - When you want to prepare and stain a smear using a regular sample tube, micro collection sample tube or Raised Bottom Tube
1. If the sample tube holder has not been ejected, press the [Mode Switch] button on the front of the main unit.
 2. To change the slide preparation mode, touch [Select mode].
 3. Touch [Smearing and staining].
 4. Touch [OK].
 5. Touch [Manual] and verify the smear preparation settings.
 - For micro collection tubes
 - Un-check [Read barcode] and enter the sample number
 - Select [Cap Open]
 - For Raised Bottom Tubes, select [RBT]
 6. Touch [OK].
 7. Mix the sample according to your laboratory's protocol.
 8. If [Cap Open] is selected or the smear will be prepared from a micro collection sample tube, open the sample tube cap.
 9. Set the sample tube in the sample tube holder.
 - Regular sample tubes and RBT samples are placed in the front tube holder
 - Micro collection tubes are placed in the rear tube holder
 10. Press the [Start] button on the front of the main unit.
 11. Following aspiration, the sample tube holder will eject and the sample tube can be removed.
 12. To process additional manual samples, return to step 5.
 - For RBT: touch [Manual], deselect [RBT], then touch [OK].
 13. To return to sampler mode processing, press the [Mode Switch] button on the front of the main unit.
 14. The prepared smears will be loaded into the magazine. When preparation of all smears is completed, the magazine containing the smears is ejected to the storage location for the slide preparation mode used. Retrieve the magazine that contains the smears.
 - In [Smearing and dyeing] mode, the magazine is fed out to the magazine storage unit.
 - In [Smearing] mode, the magazine is fed out to the manual magazine holder.

Regular sample tube holder



Micro collection sample tube holder



Manual Mode - Smear Only

Use this mode when want to prepare a smear using a regular sample tube, micro collection sample tube or Raised Bottom Tube

1. If the sample tube holder has not been ejected, press the [Mode Switch] button on the front of the main unit.
2. To change the slide preparation mode, touch [Select mode].
3. Touch [Smearing].
4. Touch [OK].
5. Open the manual magazine holder cover.
6. Pull out the manual magazine holder and load an empty magazine.
7. Push in the manual magazine holder, then close the manual magazine holder cover.
8. Ensure the status display LED of manual magazine holder is green.
9. Touch [Manual] and verify the smear preparation settings.
10. Touch [OK].
11. Press the [Start] button on the front of the main unit.
12. For additional smears, follow steps 5 - 11, using the other manual magazine holder.
13. To return to sampler mode processing, press the [Mode Switch] button on the front of the main unit.
14. The prepared smears will be loaded into the magazine. When preparation of all smears is completed, the magazine containing the smears is ejected to the storage location for the slide preparation mode used. Retrieve the magazine that contains the smears.

Manual Mode - Print Only

Use this mode when you only want to print sample information on the glass slide.

1. If the sample tube holder has not been ejected, press the [Mode Switch] button on the front of the main unit.
2. To change the slide preparation mode, touch [Select mode].
3. Touch [Print].
4. Touch [OK].
5. Open the manual magazine holder cover.
6. Pull out the manual magazine holder and load an empty magazine.
7. Push in the manual magazine holder, then close the manual magazine holder cover.
8. Ensure the status display LED of manual magazine holder is green.
9. Touch [Manual] and enter the sample information.
10. Touch [OK].
11. Press the [Start] button on the front of the main unit.
12. The printed slide can be removed from the manual magazine holder upon completion.

SP-50 — SMEAR PREP & MAINTENANCE

Manual Mode - STAT Interrupt

Use this mode when you want to interrupt sampler preparation for an urgent sample.

- Press the [Mode Switch] button on the front of the main unit to pause sampler smear preparation and change to manual mode.
- Follow the steps for the desired manual mode preparation.
- When you have finished manual preparation, press the [Mode Switch] button on the front of the main unit.
- Sampler preparation will resume.

NOTE: In [Smearing] mode, further sampler preparation will be canceled. When manual preparation finishes, sampler preparation of unprepared samples will not resume even if you press the [Mode Switch] button. Unprepared samples must be reloaded on the right sampler pool.

Maintenance

Reagent Replacement - With Error Message

Access the Reagent Replacement dialog box when a reagent becomes empty or expired.

1. Touch [Execute] in the error message dialog box.
2. Touch the reagent to be replaced.
3. If necessary, use the barcode scanner to input the reagent information of the new reagent.
4. Remove the cap from the new reagent container.
5. Remove the cap from the old reagent container.
6. Pull out the spout set straight up.
7. Insert the spout set straight into the new reagent container and close the cap.
8. Touch [Execute] to begin priming.

Reagent Replacement - No Error Message

Access the Reagent Replacement dialog box when troubleshooting is needed.

1. Touch [Maintenance] in the menu screen. The 'Maintenance' screen appears.
2. Touch [Replacement]. The 'Replacement' dialog box appears.
3. Touch [Reagent Replacement].
4. If necessary, use the barcode scanner to input the reagent information of the new reagent.
5. Remove the cap from the new reagent container.
6. Remove the cap from the old reagent container.
7. Pull out the spout set straight up.
8. Insert the spout set straight into the new reagent container and close the cap.
9. Touch [Execute] to begin priming.



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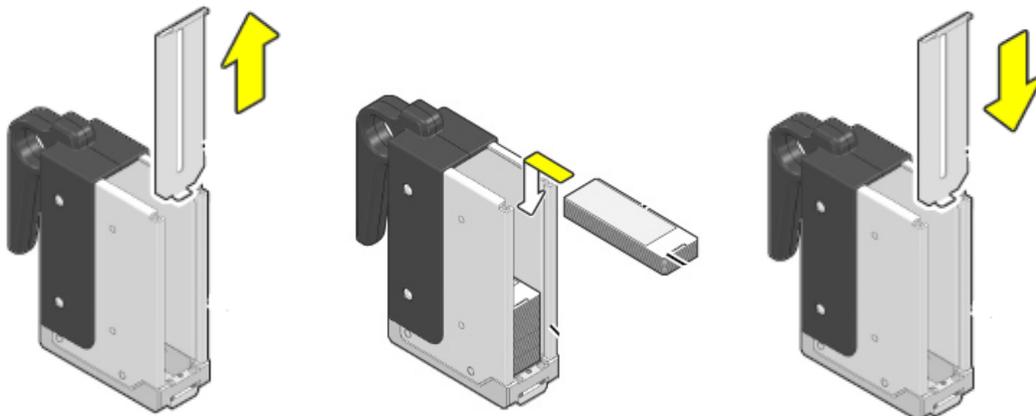
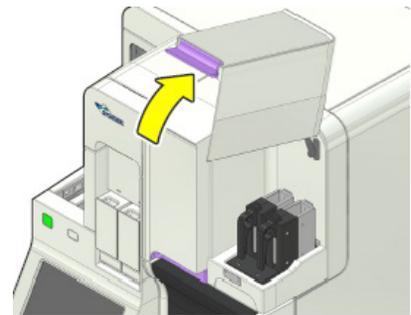
Reagent Replenishment - Rinse Water

Replenish the rinse water when it becomes empty or expired.

1. Remove the cap from the bottle that contains rinse water.
2. Fill the container with rinse water.
3. Cap the container.
4. Touch [Maintenance] in the menu screen. The 'Maintenance' screen appears.
5. Touch [Rinse devices].
6. Touch [Reagent Replenishment].
7. Select the reagent to be replenished.
8. Touch [OK]. Rinse water replenishment starts. When replenishment is completed, the information in the 'Reagent Replacement' dialog box will be updated.
9. Touch [Cancel]. The dialog box closes.

Load Glass Slides

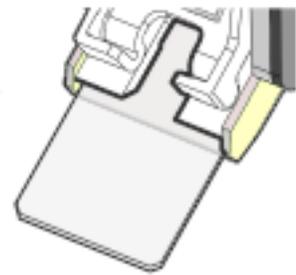
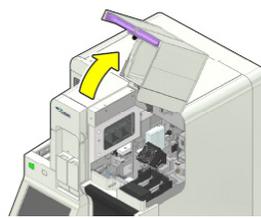
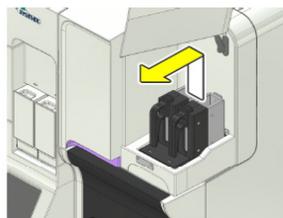
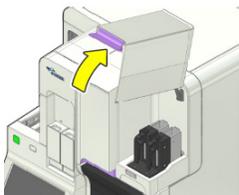
1. Open the slide set unit cover. Lift the cover up until it locks into place.
2. The status display LED on the slide set unit will be red when the slide cassette is empty.
3. Remove the slide supply cassette from the slide set unit.
4. Remove the slide supply cassette guide.
5. Load the new glass slides with the frosted side facing upwards.
6. Install the slide supply cassette guide.
7. Install the slide supply cassette.
8. Close the slide set unit cover.



Spreader Glass - Cleaning

Clean the spreader glass weekly.

1. Ensure the analyzer is in the 'Ready' state.
2. Touch [Maintenance] in the menu screen. The 'Maintenance' screen appears.
3. Touch [Rinse devices]. The 'Rinse devices' dialog box appears.
4. Touch [Spreader glass rinsing].
5. Make sure that the smear part cover is closed.
6. Touch [OK]. The smear unit moves to the position at which the spreader glass can be accessed. Wait until the smear part cover unlocks once the smear unit stops moving.
7. Open the slide set unit cover. Lift the cover up until it locks into place.
8. Confirm that the LED status display on the slide set unit is green.
9. Remove the slide supply cassette from the slide set unit. Take out both the left and right slide supply cassettes.
10. Close the slide set unit cover.
11. Open the smear part cover. Lift the cover up until it locks into place.
12. Rotate the fan forward.
13. Wipe the spreader glass with moistened gauze, then dry.
14. Close the smear part cover.
15. Touch [Cancel]. The smear unit returns to its home position.
16. Open the slide set unit cover.
17. Install the slide supply cassette, then close the slide set unit cover.
18. Touch [OK] if a message appears on the display screen.

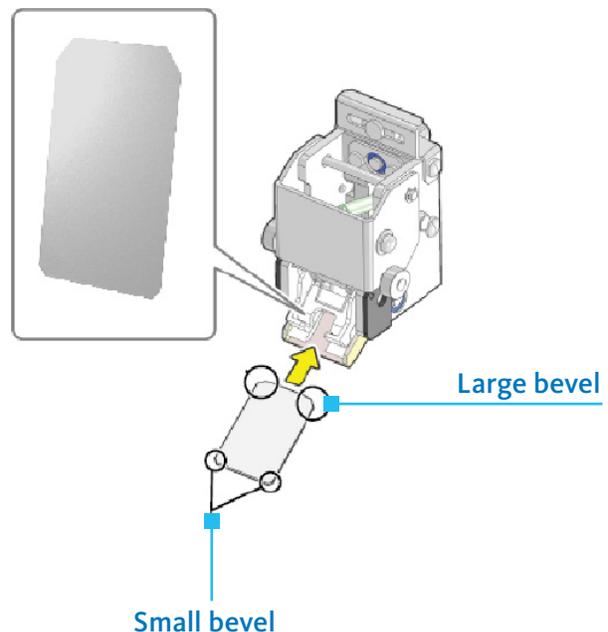
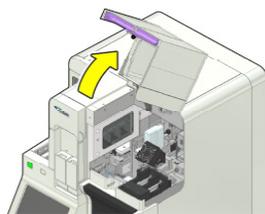
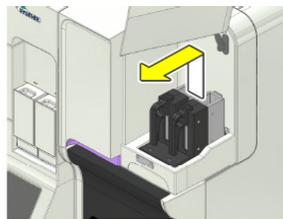
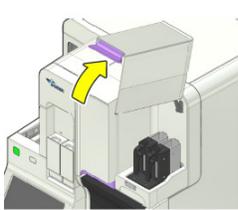


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Spreader Glass - Replacing

Replace the spreader glass after 9,000 smears or if damaged.

1. Ensure the analyzer is in the 'Ready' state.
2. Touch [Maintenance] in the menu screen. The 'Maintenance' screen appears.
3. Touch [Replacement]. The 'Replacement' dialog box appears.
4. Touch [Replace spreader glass].
5. Open the slide set unit cover. Lift the cover up until it locks into place.
6. Confirm that the status display LED on the slide set unit is green.
7. Remove the slide supply cassette from the slide set unit. Take out both the left and right slide supply cassettes.
8. Close the slide set unit cover.
9. Open the smear part cover. Lift the cover up until it locks into place.
10. Rotate the fan forward.
11. Remove the spreader glass from the holder.
12. Set the new spreader glass in the holder. Set the glass slide so that the edge with the smaller chamfer faces forward. Insert the spreader glass all the way into the spreader glass holder until it stops.
13. Close the smear part cover.
14. Touch [OK]. The spreader glass operation count resets and the smear unit returns to its home position.
15. Open the slide set unit cover.
16. Install the slide supply cassette, then close the slide set unit cover.
17. Touch [OK].

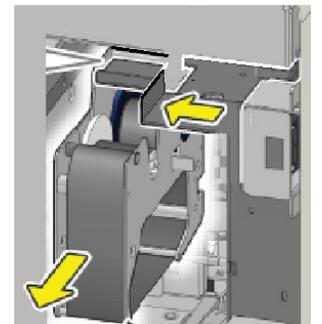
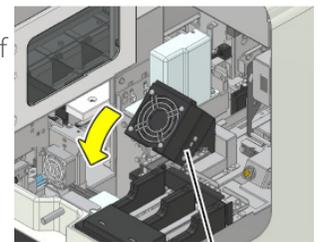
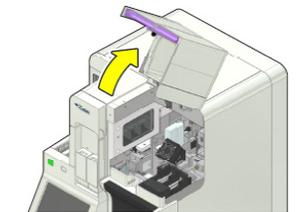
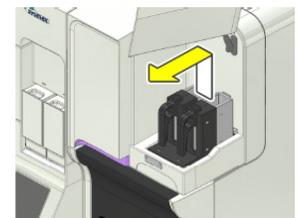
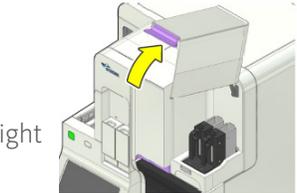


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Replace Ink Ribbon

When the error message 'No Ink ribbon' appears, replace the ink ribbon.

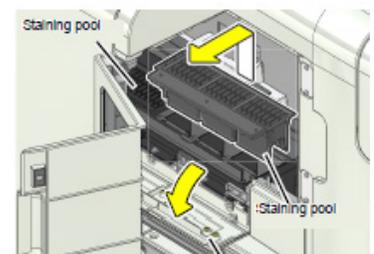
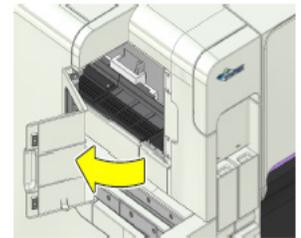
1. Confirm the analyzer is in the 'Ready' state.
2. Open the slide set unit cover. Lift the cover up until it locks into place.
3. Confirm that the status display LED on the slide set unit is green.
4. Remove the slide supply cassette from the slide set unit. Take out both the left and right slide supply cassettes.
5. Close the slide set unit cover.
6. Open the smear part cover. Lift the cover up until it locks into place.
7. Rotate the fan forward and down.
8. Remove the ribbon cartridge. The error message 'Ink ribbon not loaded' will display.
9. Touch [Confirm] in the [Help] dialog box to continue.
10. Grasp the knob, slide the bracket to the left, and move the ribbon cartridge to the removal position.
11. Lift the ribbon cartridge and remove the hook pin from the bracket.
12. Remove the ribbon cartridge. Lift both rollers of the ink ribbon and remove the used ribbon.
13. Observe the ribbon holder and printer head for debris. Wipe with methanol if necessary.
14. Insert the new ink ribbon down into the ribbon cartridge. Make sure the ink side of the ink ribbon faces downward. Place the blue shaft on the side with the seal, and the white shaft on the opposite side.
15. Mount the ink ribbon into the ribbon cartridge.
16. Remove the slack in the ribbon by turning the white roller.
17. Install the ribbon cartridge. Catch the ribbon cartridge hook pin on the bracket, then slide the bracket to the right and mount the ribbon cartridge.
18. Replace the fan in its original position.
19. Close the smear part cover.
20. Open the slide set unit cover and install the slide supply cassettes, then close the slide set unit cover.
21. Touch [Execute]. The ribbon will wind and the error will clear.



Clean the Stain Pool

Use this procedure to remove stain precipitant from the stain pool.

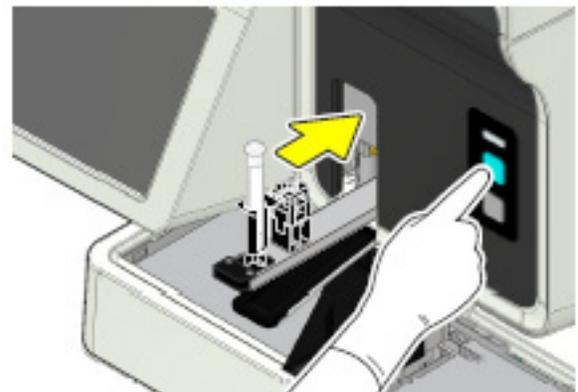
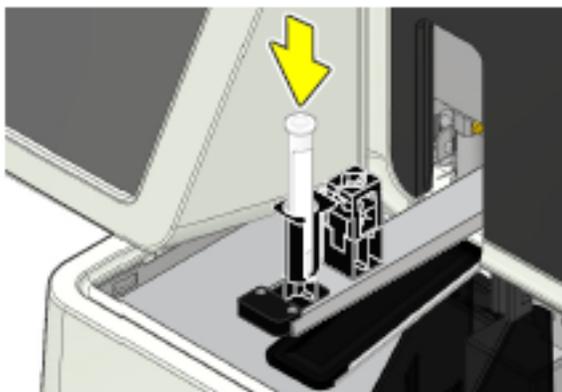
1. Follow the steps to shutdown the analyzer.
2. Open the staining part cover.
3. Remove all magazines from the feed-in area.
4. Open the staining pool cover, then lift and remove the staining pools.
5. Place the staining pool in the container for cleaning, then add methanol to the container.
6. Clean the staining pool in the container. Do NOT soak in methanol for more than 5 minutes.
7. Pour off the methanol and dispose according to your laboratory's protocol.
8. Let the staining pool air dry.
9. Install the staining pool.
10. Replace the staining pool cover and close the staining part cover.
11. Load 2-3 magazines to the feed-in area.
12. Follow the steps to start-up the analyzer.



Rinse Device

Use CELLCLEAN AUTO to rinse the smear unit and stain unit, or the smear unit only.

1. Touch [Maintenance] in the menu screen. The 'Maintenance' screen appears.
2. Touch [Rinse devices]. The 'Rinse devices' dialog box appears.
3. Touch [Cleaning]. The 'Cleaning' dialog box appears, and the sample tube holder slides out forward.
4. Select the part that you want to clean.
5. Set CELLCLEAN AUTO in the sample tube holder.
6. Press the start switch on the front side of the unit. The sample tube holder retracts and aspiration begins. When the aspiration is finished, the sample tube holder is ejected.
7. Remove the CELLCLEAN AUTO.
8. Press the [Mode Switch] button on the front of the unit to return to Sampler mode.



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Empty Waste Container

This is necessary when a waste fluid container is used. When the container becomes full, the [Help] dialog box shows 'Waste container 1 is full'. Replace the waste fluid container after the instrument enters a standby state.

1. Prepare an empty waste fluid container and remove the cap.
2. Remove the cap from the waste fluid container that has become full.
3. Remove the float switch from the full container and insert in straight into the new container, then tighten the cap.
4. Touch [Execute] in the 'Help' dialog box.
5. Close the cap on the full waste container and dispose of the waste according to your laboratory's protocol.

Clean Rinse Water Container

This is necessary when utilizing refillable containers for rinse water. To avoid bacterial contamination, it is important to rotate rinse water containers and clean between uses.

1. Fill a new rinse water container with DI water and remove the cap.
2. Remove the cap from the rinse water container that has become empty.
3. Remove the float switch from the empty container and insert in straight into the new container, then tighten the cap.
4. Touch [Execute] in the 'Help' dialog box.
5. Rinse the empty container with methanol.
6. Dispose of the used methanol according to your laboratory's protocol, and let the newly cleaned container air dry.

Clean Slide Magazines

Magazines should be wiped clean whenever they become soiled with stain.

1. Moisten gauze with methanol.
2. Wipe the top and inside of the magazines to remove any stain.
3. Let the magazines air dry.

Shutdown

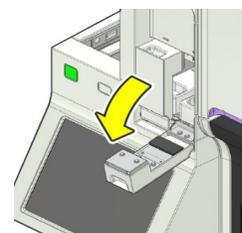
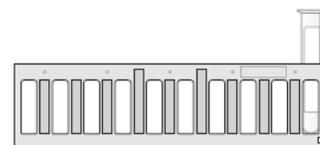
There are 2 types of shutdown: [Shutdown 1] and [Shutdown 2]. Perform Shutdown as part of the daily, weekly and/or monthly maintenance

- [Shutdown 1] rinses the hydraulic line. This can be performed in the Sampler or Manual modes.
- [Shutdown 2] rinses the hydraulic line and rinses the stain chamber with methanol. It ends by filling the stain chamber with methanol, and fills the chamber with stain the next time the power is turned on. This can be performed in the Sampler or Manual modes. Sampler mode operation is only available for this procedure when the analyzer is operated on the day of the week designated in the “Shutdown 2 settings,” or after 40 days following the last Shutdown 2 procedure.

NOTE: Do not reuse CELLCLEAN AUTO tubes that have already been used. During shutdown, other sample tubes are not accepted.

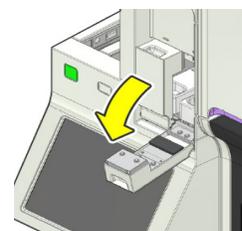
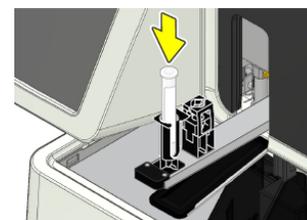
Shutdown 1 - Sampler Mode

1. Ensure the analyzer is in the ‘Ready’ state.
2. Place CELLCLEAN AUTO in position 10 of the sample rack.
3. Place the sample rack containing CELLCLEAN AUTO in the right sampler pool.
4. Touch [Sampler], then touch [OK].
5. Remove the sample rack from the left sampler pool.
6. Shutdown is automatically performed. Shutdown takes approximately 15 minutes after CELLCLEAN AUTO aspiration starts.
7. Remove the glass slide used for cleaning. The cleaned glass slide will be loaded into the magazine in the manual magazine holder.



Shutdown 1 - Manual Mode

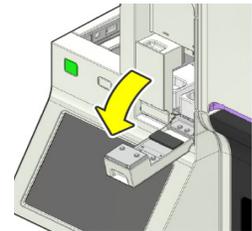
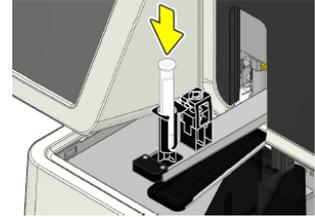
1. Ensure the analyzer is in the ‘Ready’ state.
2. From the [Menu] screen, touch [Shutdown].
3. Ensure [Shutdown 1] is selected.
4. Place the tube of CELLCLEAN AUTO into the regular sample tube holder.
5. Press the [Start] switch on the front of the main unit.
6. Shutdown is automatically performed. Shutdown takes approximately 15 minutes after CELLCLEAN AUTO aspiration starts. The sample tube holder will be ejected forward once the CELLCLEAN AUTO aspiration finishes.
7. The manual sample tube holder will be presented. Remove the CELLCLEAN AUTO. When all operations are finished, the sample tube holder automatically retracts into the main unit, and the instrument power turns OFF.
8. Remove the glass slide used for cleaning. The cleaned glass slide will be loaded into the magazine in the manual magazine holder.



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Shutdown 2 - Manual Mode

1. Ensure the analyzer is in the 'Ready' state.
2. From the [Menu] screen, touch [Shutdown].
3. Ensure [Shutdown 2] is selected.
4. Place the tube of CELLCLEAN AUTO into the regular sample tube holder.
5. Press the [Start] switch on the front of the main unit.
6. Shutdown is automatically performed. Shutdown takes approximately 15 minutes after CELLCLEAN AUTO aspiration starts. The sample tube holder will be ejected forward once the CELLCLEAN AUTO aspiration finishes.
7. The manual sample tube holder will be presented. Remove the CELLCLEAN AUTO. When all operations are finished, the sample tube holder automatically retracts into the main unit, and the instrument power turns OFF.
8. Remove the glass slide used for cleaning. The cleaned glass slide will be loaded into the magazine in the manual magazine holder.





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