Abbott ARCHITECT *i*2000$_{SR}$

Overview

The ARCHITECT *i*2000$_{SR}$ System is a fully automated immunoassay system allowing random and continuous access sample processing as well as priority processing.

Observe the following instruction to ensure proper processing of the samples in terms of security when using the Analyzer ARCHITECT *i*2000$_{SR}$:

Table 6.1: Allowable Sample Tube Types

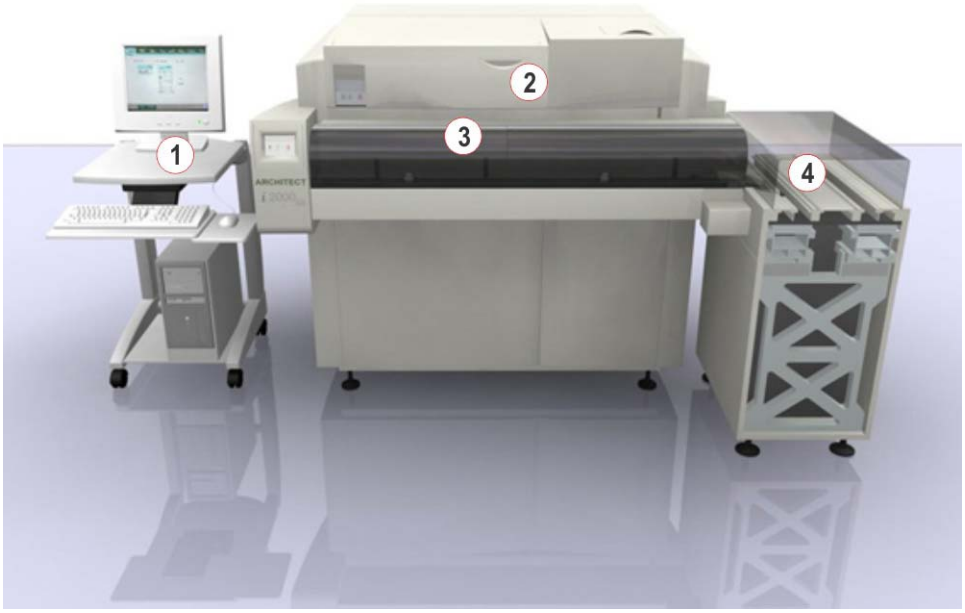
Nominal Measures (with closure) [mm]	Capped	Centrifuged	Source	Notes
13x75 13x100 16x75 16x100	No	Yes	Routed to the Interface Module	None
Refer to specific Analyzer Operations Manual			Manual load	Refer to specific Analyzer Operations Manual and sections of this Manual.

NOTE: It is possible processing of sample tubes manually loaded on the ARCHITECT *i*2000$_{SR}$ Analyzer and sample tubes routed to the ARCHITECT *i*2000$_{SR}$ Interface Module (IM) by the Automation System at the same time. The ARCHITECT *i*2000$_{SR}$ Interface Module can be run with the Automation System or in standalone mode Analyzer that is independent from the power supply of the Automation System.

NOTE: Refer to specific Analyzer operations manual for further information.

For more information about labels meaning refer to specific section about Safety Labels.

Figure 6.1: ARCHITECT *i* 2000$_{SR}$ Analyzer



1- ARCHITECT System Control Center (SCC): Computer system that provides user control of the ARCHITECT *i* 2000$_{SR}$

2- ARCHITECT i *i* 2000$_{SR}$: Diagnostic system that performs immunoassay testing

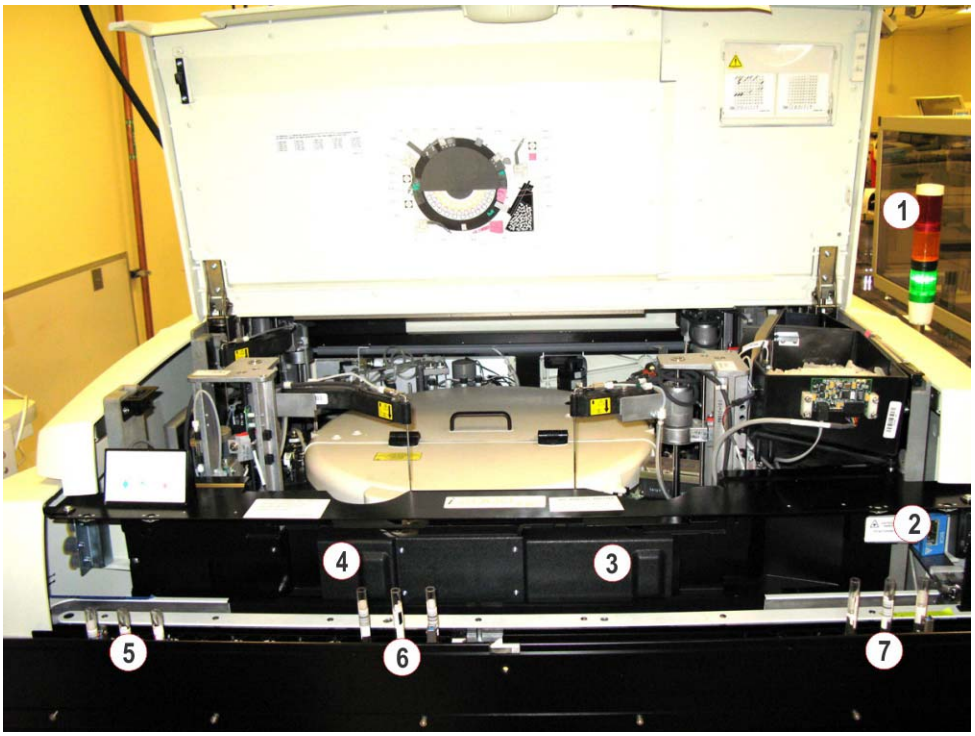
3- *i* 2000$_{SR}$ IM: Transport module that presents samples to the ARCHITECT *i* 2000$_{SR}$ for analysis

4- Automation System

Interface Module Components

The *i*2000$_{SR}$ IM has four lanes which transport sample tubes to and from the ARCHITECT *i*2000$_{SR}$ by Automation System.

Figure 6.2: General view



1- Lamp
2- Barcode Reader
3- STAT Gate
4- Routine gate
5- Output queue
6- Routine Input queue
7- Priority Input queue

CAUTION: Class 2 Laser Radiation when open. Do not stare into beam.

Covers

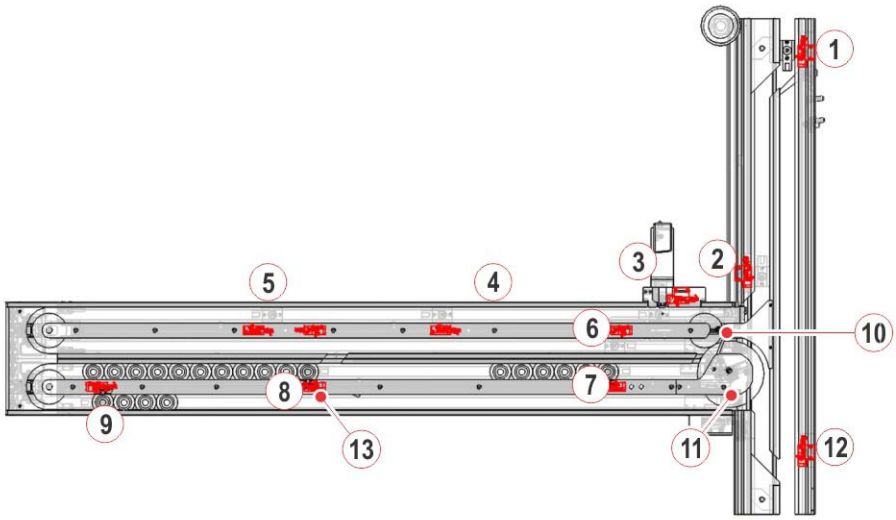
The *i*2000$_{SR}$ IM is covered by safety shields. A secured safety shield covers Sampling and Transport Lanes of the *i*2000$_{SR}$ IM. The left and right safety shields cover Manual Loading and Output Lanes.

Figure 6.3: Covers

1- Left Cover
2- Right Cover
3- Secured Cover

Gates

Figure 6.4: *i*2000$_{SR}$ Interface Module gates and actuators



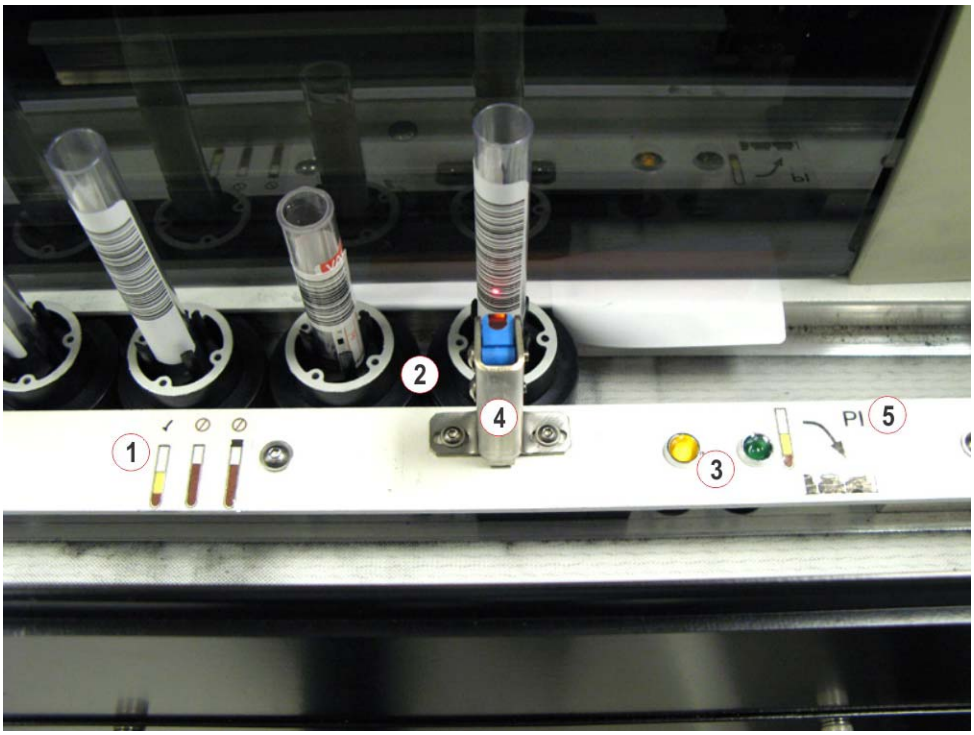
1- Divert Gate
2- Prepare Gate
3- Barcode Reader Gate
4- STAT Gate
5- Routine Gate
6- Return Gate
7- Priority Input Gate
8- Routine Input Gate
9- Output Gate
10- Actuator
11- Actuator
12- Stop Gate
13- Routine Input Divert

Priority Input Queue

The Priority Input queue is a holding area that positions sample tubes for priority sample processing. Sample tubes (up to six sample tubes at one time) can be manually loaded into tube carriers in the Priority Input queue and sent to the Routine and STAT gates where they are processed.

NOTE: Load only uncapped, centrifuged, barcode labeled tubes in the *i*2000$_{SR}$ IM Routine Input queue.

Figure 6.5: Priority Input Queue



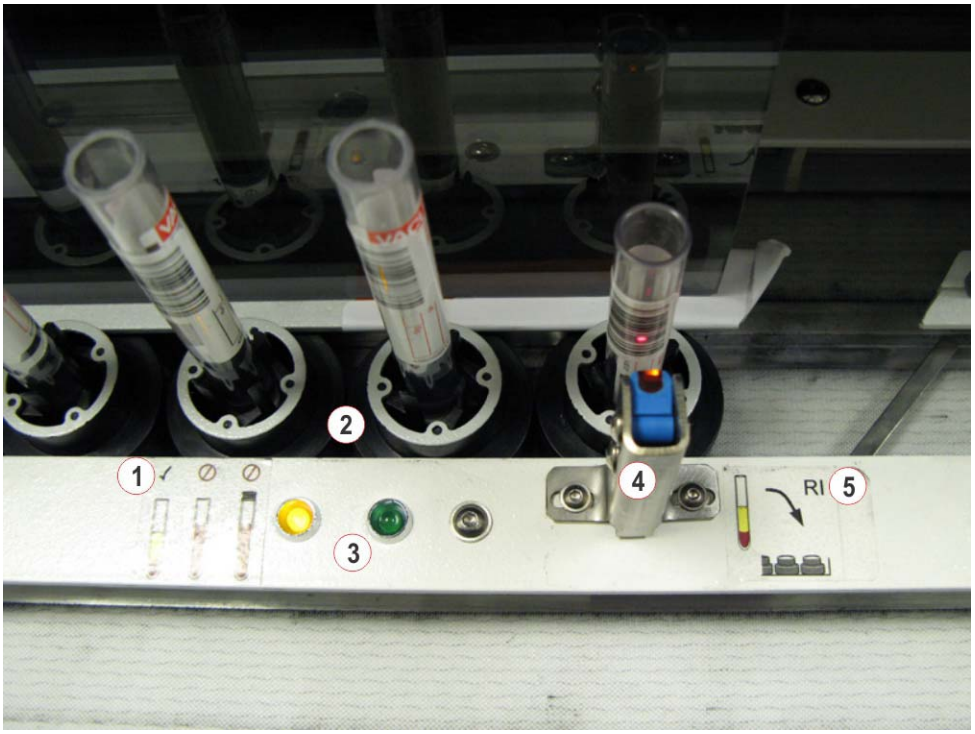
1- Sample condition label
2- Priority Input queue
3- LED indicators
4- Tube detect sensor
5- Tube Input Loading label

Routine Input Queue

The Routine Input queue is a holding area that positions sample tubes for routine sample processing. Sample tubes (up to 11 sample tubes at one time) can be manually loaded into tube carriers in the Routine Input queue and sent to the Routine and STAT gates where they are processed.

NOTE: Load only uncapped, centrifuged, barcode labeled tubes in the *i*2000$_{SR}$ IM Routine Input queue.

Figure 6.6: Routine Input Queue



1- Sample condition label
2- Routine Input queue
3- LED indicators
4- Tube detect sensor
5- Tube Input Loading label

Output Queue

The Output queue is a holding area for processed sample tubes that were loaded manually on the *i*2000$_{SR}$ IM Priority or Routine Input queue. In addition, manually loaded sample tubes that could not be processed due to warning messages or error codes during processing. Sample tubes should be unloaded from the Output queue on a routine basis to empty the tube carriers and allow for continuous sample loading.

Figure 6.7: Output Queue

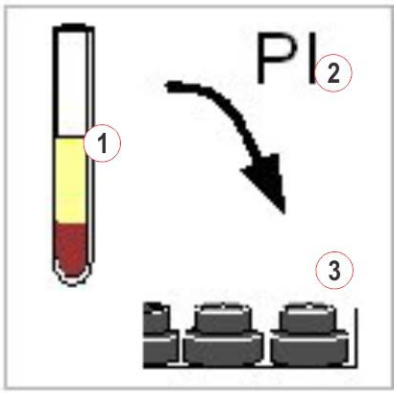
1- Output queue sample unloading label
2- Tube detect sensor
3- Output queue

Labeling

Figure 6.8: Sample Condition Label

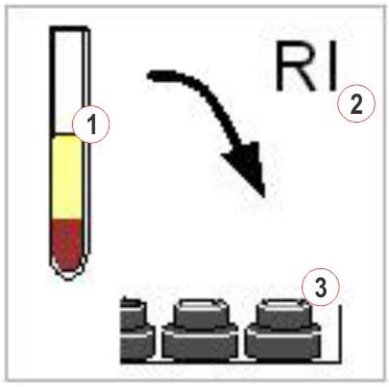
1- Centrifuged
2- No whole blood
3- No capped tubes
4-

Figure 6.9: Priority Input queue sample loading



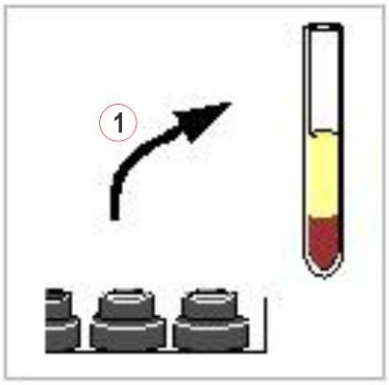
1- Centrifuged, uncapped sample tubes
2- Priority Input queue
3- Load sample tube into tube carrier
4-

Figure 6.10: Routine Input queue sample loading



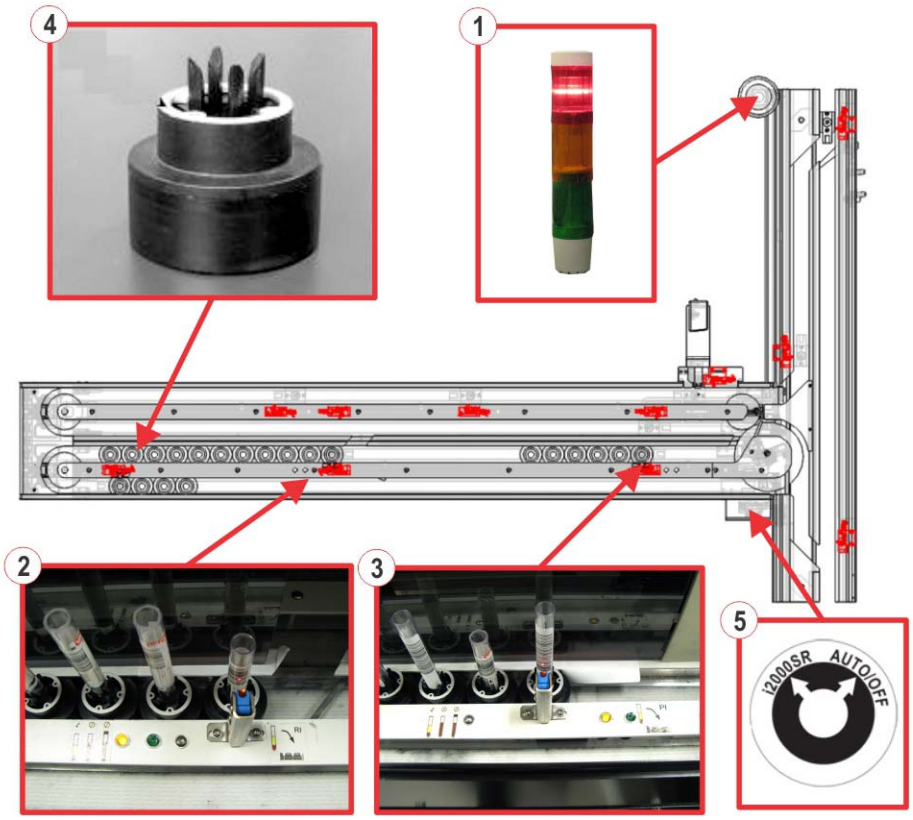
1- Centrifuged, uncapped sample tubes
2- Routine Input queue
3- Load sample tube into tube carrier

Figure 6.11: Output queue sample unloading label



1- Unload sample tubes from tube carriers

Figure 6.12: *i*2000$_{SR}$ Interface Module Lamp, LEDs and carriers



1- Lamp
2- Routine Input LEDs
3- Priority Input LEDs
4- *i*2000$_{SR}$ carriers
5- Power Switch

Lamp

The Lamp displays the operating status of the *i*2000$_{SR}$ IM and ARCHITECT *i*2000$_{SR}$. Depending on the status of both the *i*2000$_{SR}$ IM and ARCHITECT *i*2000$_{SR}$, the lamp illuminates different colors, as described table below.

Table 6.2: *i*2000$_{SR}$ IM Lamp status

Light		*i*2000$_{SR}$ IM status	ARCHITECT *i*2000$_{SR}$ status
Red	Solid	Any status Stop or Idle	Any status but Running Any status
Red	Flashing	Stop, Error condition (Second Serial Port communication problem). Refer to i 2000$_{SR}$ IM Troubleshooting (6-38) for further information.	Any status
Red Yellow	Solid Flashing	Stop, Error condition (Sample Presentation error or a Sample Presentation error followed by a Sample Queue error occurred on *i*2000$_{SR}$ IM in Standalone Mode). Refer to i 2000$_{SR}$ IM Troubleshooting (6-38) for further information.	Stopped
Red Yellow	Flashing Flashing	Stop, Error condition (Sample Presentation error or a Sample Presentation error followed by a Sample Queue error occurred on *i*2000$_{SR}$ IM in Standalone Mode and Second Serial Port communication problem). Refer to i 2000$_{SR}$ IM Troubleshooting (6-38) for further information.	Running
Yellow	Solid	Performing FSE procedure	Any status
Green	Solid	On-line, Off-line, Off-line in progress	Running

LEDS

Table 6.3: *i*2000$_{SR}$ IM LED indicators

LED Indicator	Description
Green illuminated	Indicates a sample tube can be placed in the carrier at the appropriate gate for sample processing.
Yellow illuminated	Indicates one of the following: 1. Flashing: – Carriers are scheduled to move – A sample tube should not be placed in a carrier at this time – a sample presentation error and/or a sample queue error occur in standalone mode. the flashing LED indicates in which Sampling point the error occurs. 2. Solid: – Carriers are being moved – *i*2000$_{SR}$ IM is in Stop status – *i*2000$_{SR}$ IM is initializing – A sample tube should not be placed in a carrier at this time
Both Off	Indicates the *i*2000$_{SR}$ IM is powered off.

*i*2000$_{SR}$ Carriers

In the *i*2000$_{SR}$ Interface Module there are a total number of 21 *i*2000$_{SR}$ carriers. They are different than the automation carriers and cannot be interchanged, they are black with a white ring.

Power switch

Figure 6.13: *i*2000$_{SR}$ IM power switch Type 1

*i*2000$_{SR}$ position	*i*2000$_{SR}$ IM is in Standalone mode.
AUTO/OFF position	*i*2000$_{SR}$ IM is in Automation mode, but receives its power from the ARCHITECT *i*2000$_{SR}$ UPS. When the Automation system is powered off, the *i*2000$_{SR}$ IM is off also.

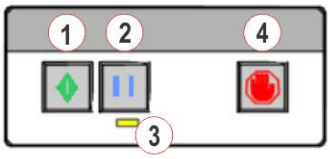
Figure 6.14: *i*2000$_{SR}$ IM power switch Type 2

OFF position	*i*2000$_{SR}$ IM is power off.
ON position	*i*2000$_{SR}$ IM is power on.

Keypad

The *i*2000$_{SR}$ IM keypad is an input device used by the operator to control the *i*2000$_{SR}$ IM activities.

Figure 6.15: *i*2000$_{SR}$ IM keypad



1- Run (On-line key):
- Sets the *i*2000$_{SR}$ IM on-line

2- Pause (Off-line key):
- Sets the *i*2000$_{SR}$ IM off-line
- The ARCHITECT *i*2000$_{SR}$ completes aspiration of the current sample

3- Off-line indicator:
- Flashes to indicate the *i*2000$_{SR}$ IM is completing the current operation and is in progress status
- Illuminates to indicate the *i*2000$_{SR}$ IM is off-line

4- Stop key:
- Stops the ARCHITECT *i*2000$_{SR}$
- The ARCHITECT *i*2000$_{SR}$ completes aspiration of the current sample
- Selecting the “Stop” key on the *i*2000$_{SR}$ keypad requires that any sample with its barcode label previously read by the *i*2000$_{SR}$ IM barcode reader must be reloaded for processing

NOTE: Use the Automation commands to control the *i*2000$_{SR}$ IM activities if the Automation System is working.

Operating Instructions

The *i*2000$_{SR}$ IM can be operated in two different modes.

- Automation mode:
  - Sample tubes are manually loaded on the *i*2000$_{SR}$ IM to be transported to the ARCHITECT *i*2000$_{SR}$.
  - Sample tubes reach the *i*2000$_{SR}$ IM by the Automation System
- Standalone mode:
  - Sample tubes are manually loaded on the *i*2000$_{SR}$ IM to be transported to the ARCHITECT *i*2000$_{SR}$.

NOTE: The standalone mode can only be possible if the power source of the *i*2000$_{SR}$ IM is separate from the Automation. In the case of Automation powers the *i*2000$_{SR}$ IM, contact the technical service personnel.

Standalone Mode to Automation Mode (power switch type 1)

The following steps describe how to change the *i*2000$_{SR}$ IM from Standalone Mode to Automation Mode.

1. If the Automation System is powered off proceed to step 3.
2. If the Automation System is powered on perform shutdown. Refer to specific section about Automation System Shutdown and Startup.
3. Turn the *i*2000$_{SR}$ IM power switch from *i*2000$_{SR}$ to AUTO/OFF.
4. Power on the Automation System. Refer to specific section about Automation System Shutdown and Startup.

Automation Mode to Standalone Mode (power switch type 1)

The following steps describe how to change the *i*2000$_{SR}$ IM from Automation Mode to Standalone Mode.

1. Allow sample tubes inside *i*2000$_{SR}$ IM to be processed and routed back to Automation System. If this is not possible proceed to step 2.
2. Set *i*2000$_{SR}$ IM offline with flush.
3. Repeat steps 1 - 2 for each *i*2000$_{SR}$ connected to Automation System
4. Power off Automation System. Refer to specific section about Automation System Shutdown and Startup.
5. Turn the *i*2000$_{SR}$ IM power switch from AUTO/OFF to *i*2000$_{SR}$.

Standalone Mode to Automation Mode (power switch type 2)

The following steps describe how to change the *i*2000$_{SR}$ IM from Standalone Mode to Automation Mode.

1. If the Automation System is powered on proceed to step 3.
2. If the Automation System is powered off perform start up. Refer to specific section about Automation System Shutdown and Startup.
3. Make sure the *i*2000$_{SR}$ IM power switch is to ON position
4. Power on the *i*2000$_{SR}$ IM power supply.

Automation Mode to Standalone Mode (power switch type 2)

The following steps describe how to change the *i*2000$_{SR}$ IM from Automation Mode to Standalone Mode.

1. Allow sample tubes inside *i*2000$_{SR}$ IM to be processed and routed back to Automation System. If this is not possible proceed to step 2.
2. Set *i*2000$_{SR}$ IM offline with flush.
3. Repeat steps 1 - 2 for each *i*2000$_{SR}$ IM connected to Automation System.
4. Power off Automation System. Refer to specific section about Automation System Shutdown and Startup.
5. Make sure the *i*2000$_{SR}$ IM power switch is to ON position.

*i*2000$_{SR}$ IM Shutdown

The following procedure describes how to shut down the *i*2000$_{SR}$ IM. Refer to specific section about Automation System Shutdown and Startup.

NOTE: This procedure does not shut down the ARCHITECT *i*2000$_{SR}$ IM. Refer to the Analyzer Operations Manual for additional information.

WARNING: Sample integrity could be compromised if samples are left on the *i*2000$_{SR}$ IM when power is shut down. Refer to your laboratory guidelines or the reagent manufacturer's assay-specific documentation (e.g., a package insert or reagent application sheet) for detailed specimen collection, preparation, and storage information.

1. Allow sample processing to complete.
2. Press the Stop key then the Run key on the*i*2000$_{SR}$ IM keypad.
   - The *i*2000$_{SR}$ IM begins initialization.
   - All *i*2000$_{SR}$ carriers are transported to the Output queue and checked at the Output queue tube detect sensor. If a sample tube is detected, initialization stops until the sample tube is removed.

- Any Automation carriers present on the *i*2000$_{SR}$ IM are returned to the Automation System during initialization.

3. Remove any remaining sample tubes from the *i*2000$_{SR}$ IM.
4. Shut down the Automation System. Refer to specific section about Automation System Shutdown and Startup for additional information.
5. If the power switch is type 1,
   - Automation Mode turn the *i*2000$_{SR}$ IM power switch to the “AUTO/OFF” position. In case Automation System is provided of UPS the *i*2000$_{SR}$ IM will be automatically turned off when the UPS is switched off.
   - Standalone Mode turn the*i*2000$_{SR}$IM power switch from the “APS/OFF” to the "*i*2000$_{SR}$" position.
6. If the power switch is type 2, turn the *i*2000$_{SR}$ IM power switch to the “OFF” position.

*i*2000$_{SR}$ IM Startup

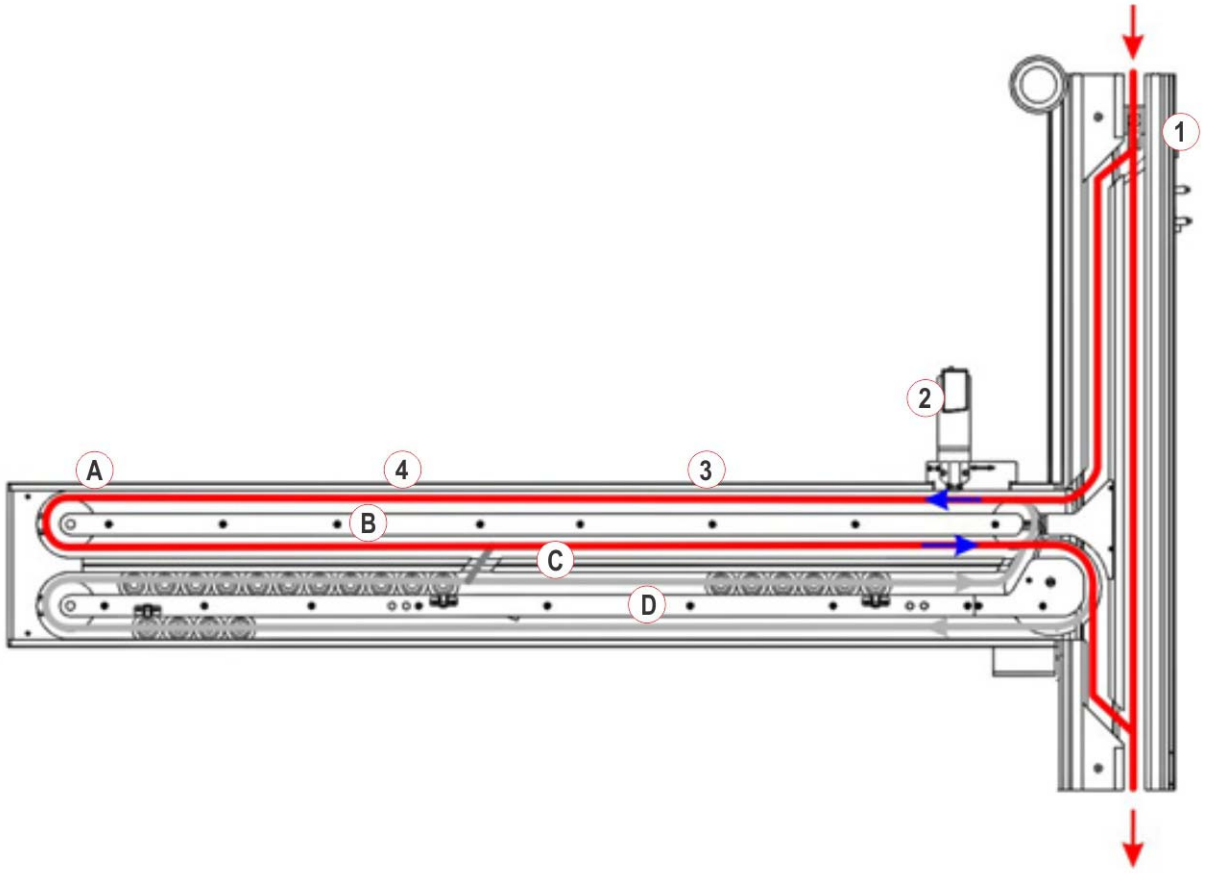
The following procedure describes how to restore power to the *i*2000$_{SR}$ IM when in Automation mode. Refer to specific section about Automation System Shutdown and Startup for additional information.

1. If the power switch is type 1,
   - Automation Mode turn the *i*2000$_{SR}$ IM power switch to the “AUTO/OFF” position. In case Automation System is provided of UPS the *i*2000$_{SR}$ IM will be automatically turned on when the UPS is switched on.
   - Standalone Mode turn the *i*2000$_{SR}$ IM power switch from the “APS/OFF” to the "*i*2000$_{SR}$ " position.
2. If the power switch is type 2, turn the *i*2000$_{SR}$ IM power switch to the “ON” position.
3. Start up the Automation System. Refer to specific section about Automation System Shutdown and Startup for additional information.
4. Ensure the *i*2000$_{SR}$ is in Running status. Refer to the Analyzer Operations Manual for additional information.
5. The *i*2000$_{SR}$ IM begins initialization. Initialization is complete when:
   - Six tube carriers have been moved to the Priority Input queue.
   - Eleven tube carriers have been moved to the Routine Input queue.
   - Green LED indicators at the Priority Input and Routine Input queues are illuminated.
6. Return the *i*2000$_{SR}$ to on-line, if necessary. Refer to specific section about Module Status.

Sample tube routine from Automation System

The following information describes the movement of a sample tube when arrived to the IM by automation system.

Figure 6.16: *i*2000$_{SR}$ Interface Module Automation system tube route



A- Sampling Lane
B- Transport Lane
C- Manual Loading Lane
D- Output Lane
1- Divert Gate
2- Barcode Reader Gate
3- STAT Gate and STAT Queue
4- Routine Gate and Routine Queue

1. A sample tube to be processed by *i*2000$_{SR}$ is diverted to the ARCHITECT *i*2000$_{SR}$ at the Divert Gate.
2. Sample tubes are moved to and from the ARCHITECT *i*2000$_{SR}$ by belts.
3. At the*i*2000$_{SR}$IM, the carrier is moved through Sampling Lane to the barcode reader at the BCR gate.
4. At the barcode reader the sample ID is read.
5. After the barcode reader:

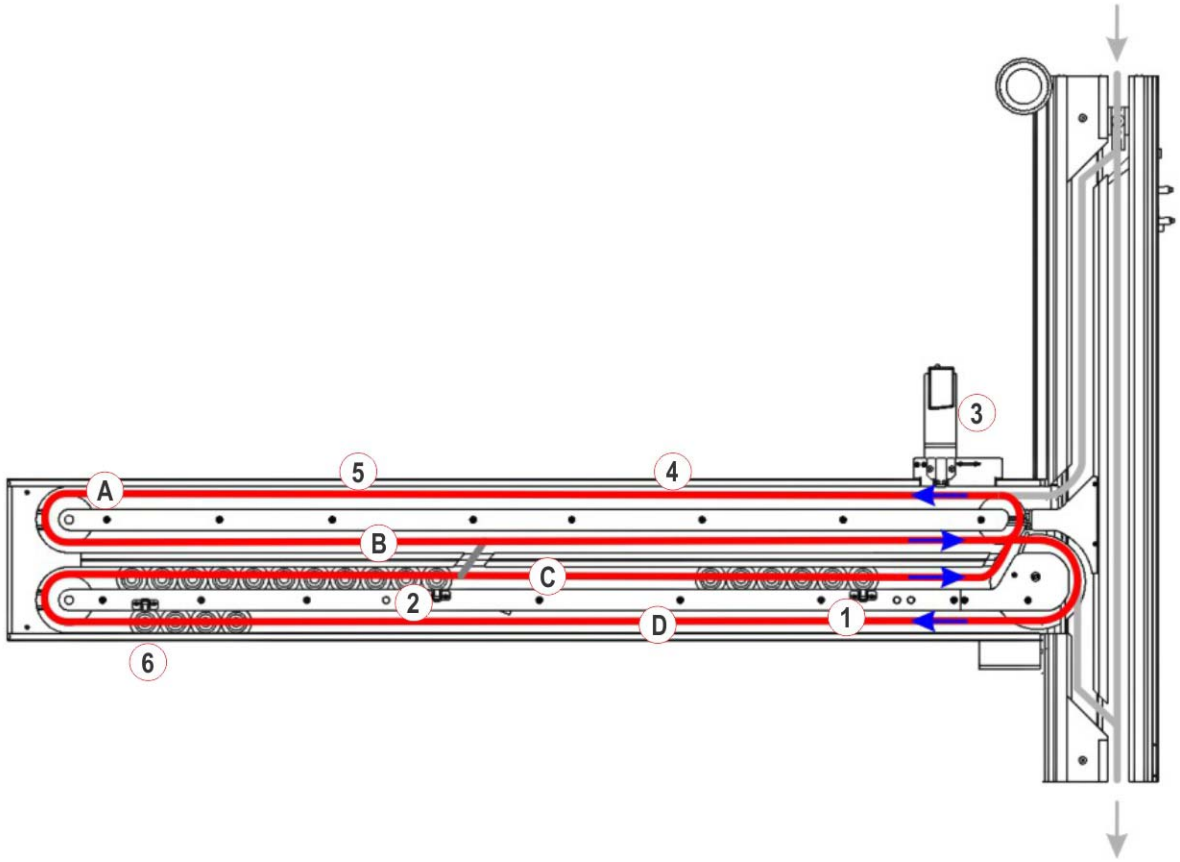
- The sample tube is transported to the STAT gate and sample is aspirated if needed. Queue length at this gate is two.
- The sample tube is transported to the Routine gate and sample is aspirated, if needed. Queue length at this gate is seven.

6. When the sample processing is complete, or if an error condition occurred, the sample tube is transported to Transport Lane.
7. The sample tube is returned to the track.

Sample tube Routine Manual loading

The following information describes the movement of a sample tube when loaded on the *i*2000$_{SR}$ IM.

Figure 6.17: *i*2000$_{SR}$ Interface Module manual tube loading route



A- Sampling Lane
B- Transport Lane
C- Manual Loading Lane
D- Output Lane
1- Priority Input Queue (PI) (6carriers)
2- Routine Input Queue (RI) (11 carriers)
3- Barcode Reader Gate
4- STAT Gate and STAT Queue
5- Routine Gate and Routine Queue
6- Output Queue

1. The sample tube is manually loaded at either the Priority Input queue or Routine Input queue.
2. The tube detect sensor detects the presence of the sample tube in the carrier at the Priority or Routine Input queue.
3. Sample tubes are moved to and from the ARCHITECT *i*2000$_{SR}$ by belts.
4. A sample tube loaded in the Priority Input queue is transported through the Sampling Lane to the barcode reader at the BCR gate.
5. A sample tube loaded in the Routine Input queue is transported first to Transport Lane, and then through Sampling Lane to the barcode reader at the BCR gate.

6. At the barcode reader the sample ID is read.
7. After the barcode reader:
   a. The sample tube is transported to the STAT gate and sample is aspirated if needed. Queue length at this gate is two.
   b. The sample tube is transported to the Routine gate and sample is aspirated, if needed. Queue length at this gate is seven.
8. When the sample processing is complete, or if an error condition occurred, the sample tube is transported to Transport Lane and then to the Output Lane.
9. The sample tube is moved to the Output queue for unloading.

Manual loading and unloading sample tubes

During manual loading and unloading operations, use the following precautions:

WARNING: Potential Biohazard. When handling uncapped sample tubes, avoid splashing sample outside of the sample tubes. Sample tubes are potentially biohazardous. Follow your laboratory standard operating procedures and guidelines when handling and disposing of tubes.

NOTE: Do not use tube carriers if they are damaged. The tubes should be upright and centered when loaded to the tube carrier to prevent splashing or spillage.

NOTE: Load only uncapped, centrifuged, barcode labeled tubes in the *i*2000$_{SR}$ IM Routine or Priority Input queues.

CAUTION: Close the *i*2000$_{SR}$ covers when sample tubes are not manually loaded on the Analyzer.

Refer to Labeling (6-9).

Loading sample tubes

Sample tubes (up to six at a time) can be manually loaded into tube carriers in the Priority Input queue. Sample tubes loaded in the Priority Input queue are processed before samples loaded in the Routine Input queue, and before samples loaded on the Automation System.

Sample tubes (up to 11 at a time) can be loaded manually into tube carriers in the Routine Input queue. Sample tubes loaded in the Routine Input queue are processed before samples loaded on Automation System.

The following conditions must be satisfied.

- The *i*2000$_{SR}$ IM Lamp is green.
- The Green LED on the *i*2000$_{SR}$ IM in correspondence to the Priority Input or Routine Input gate, depending which queue the operator wants to use, is illuminated.

Perform the following steps to manually load sample tubes into the Priority Input queue of the *i*2000$_{SR}$ IM.

1. Lift the *i*2000$_{SR}$ IM right cover to load in the Priority Input gate or the left cover to load in the Routine Input Gate.
2. Wait until the Green LED is illuminated.
3. Multiple sample tubes or calibrators may be loaded from left to right into the *i*2000$_{SR}$ carriers located in the Priority Input queue.
4. Load a sample tube in the *i*2000$_{SR}$ carrier located at the Priority Input or Routine Input gate in front of the tube detect sensor. Insert the tube straight into the *i*2000$_{SR}$ carrier, ensuring it is seated firmly against the bottom of the tube carrier and is not tilted.

5. The tube detect sensor detects the presence of the sample tube. The Green LED switches off and the Yellow LED illuminates, flashing to alert the operator that the *i*2000$_{SR}$ carrier will be moving. The Priority or Routine Input gate opens, and the *i*2000$_{SR}$ carrier moves forward to the barcode reader at the BCR (Barcode Reader) gate in the Sampling Lane.
6. Continue to load additional tubes by placing each subsequent sample in the next available tube carrier in the queue. Do not skip positions, leaving empty tube carriers; the tube detect sensor will not detect a sample tube and the gate will not be opened.
7. Close the *i*2000$_{SR}$ IM right cover.

WARNING: Potential Biohazard. To prevent possible splashing, wait until the Green LED is illuminated before adding tubes to the *i*2000$_{SR}$ IM. The tube carriers are moving when the Yellow LED is flashing.

Unloading sample tubes

Sample tubes that have been manually loaded in the Routine or Priority Input queues are routed to the Output queue after processing when:

- Ordered tests have been successfully aspirated at the Routine and STAT gates.
- The sample tube encountered a warning message or error code during processing, such as barcode label read error or aspiration failure.

Perform the following procedure to unload a sample tube from the *i*2000$_{SR}$ IM.

1. Lift the *i*2000$_{SR}$ IM left cover.
2. Remove all sample tubes from the Output queue. This allows the tube detect sensor to confirm the absence of a sample tube and open the gate to move the empty *i*2000$_{SR}$ carriers to the Priority and the Routine Input queue.

NOTE: If a sample tube is present in the *i*2000$_{SR}$ carrier at the tube detect sensor, the *i*2000$_{SR}$ carriers will not move to the Priority and Routine Input queues.

3. Close the *i*2000$_{SR}$ IM Cover.
4. Store sample tubes according to laboratory guidelines

Loading Calibrators on the *i*2000$_{SR}$ IM

The following procedure describes how to load calibrators on the ARCHITECT *i*2000$_{SR}$ when one or more assays require calibration.

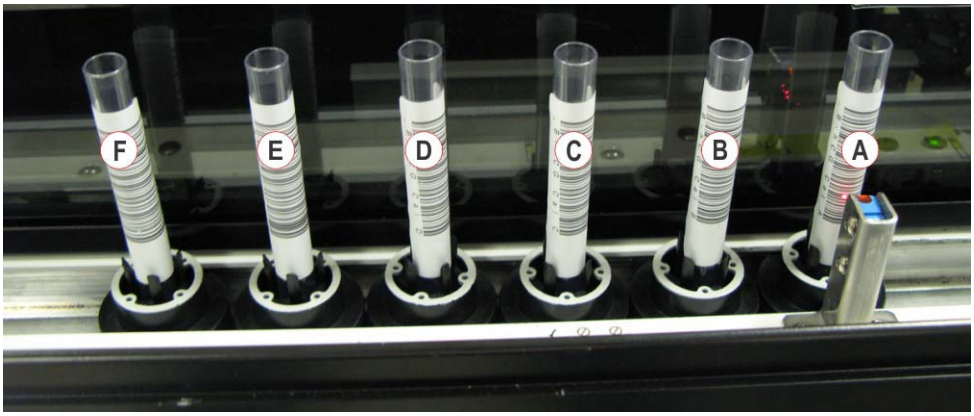
NOTE: Calibrators must be run on the *i*2000$_{SR}$ IM Routine Input queue.

1. Ensure the ARCHITECT *i*2000$_{SR}$ is in the Running status. Refer to the Analyzer Operations Manual for additional information.
2. Before loading calibrators on the *i*2000$_{SR}$ IM:
   a. Verify the calibrators are within the expiration date on the bottle label. DO NOT use the calibrators if the expiration date is exceeded.
   b. Ensure barcode label alignment is correct and meets recommended specifications.
   c. Ensure the label does not extend below the top of the *i*2000$_{SR}$ carrier.
   d. Use the ARCHITECT *i*2000$_{SR}$ SCC to print calibrator barcode labels and to create the actual assay calibration order.
3. Determine the minimum sample volume required in the sample tube.
   a. Verify at least 8 millimeters (mm) of sample plus the minimum sample volume as printed on the ARCHITECT Order List report is present for aspiration of the calibrator.
   b. Refer to the reagent manufacturer's assay-specific documentation (e.g., a package insert or reagent application sheet) for detailed, assay-specific information.

NOTE: Minimum sample volume= 8 millimeters + Order List report minimum sample volume.

4. If in Automation Mode, change the appropriate ARCHITECT *i*2000$_{SR}$ to off-line.
5. Press the “On-line key” on the keypad (refer to Keypad (6-15)) for the Interface Module to accept samples.
6. Ensure all Automation System carriers have been returned to the track.
7. Perform the following steps to load calibrators on the *i*2000$_{SR}$ IM.
   a. Lift the *i*2000$_{SR}$ IM left safety shield.
   b. Load the barcode labeled tubes containing the assay calibrators into the tube carriers in the Routine Input queue.
      – Load calibrators from left to right
      – Calibrators must be loaded on the *i*2000$_{SR}$IM in descending, sequential order.
      – Each tube must be seated firmly against the bottom of the tube carrier and must not be tilted.

Figure 6.18: Loading 6-point calibrators



– For example: for a 6-point assay calibration, load Calibrator (F) first, then Calibrator (E), and continue until loading Calibrator (A) to the tube carrier in front of the tube detect sensor.

Figure 6.19: Loading 2-point calibrators

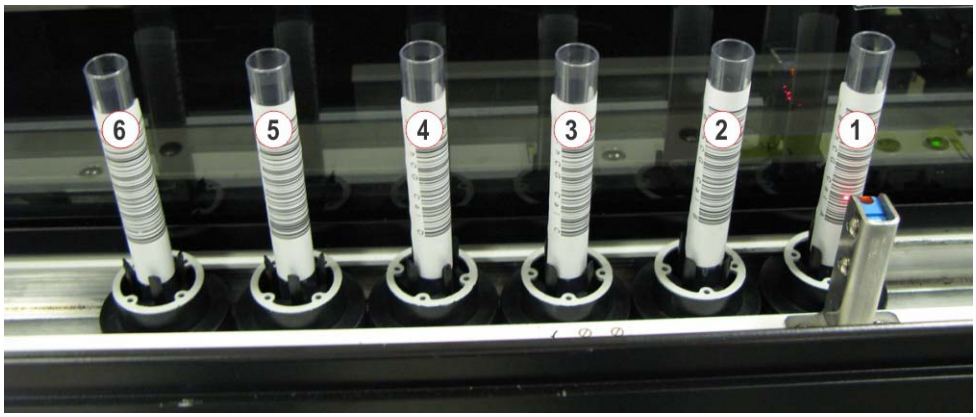


Table 6.4: Legend

Tube	Calibrator	Assay
1	1	1
2	2	1
3	1	2
4	2	2
5	1	3
6	2	3

– For example: for a 2-point assay calibration, load Calibrator 2 first, then Calibrator 1. Up to three 2-point calibrations can be loaded at one time, with Calibrator 1 loaded in front of the tube detect sensor.

c. Close the *i*2000$_{SR}$ IM cover.

8. Calibrators will return to the Output queue when sample aspiration has been completed.
9. If in Automation Mode, return the ARCHITECT *i*2000$_{SR}$ to on-line.

Running Quality Control

Barcode labeled controls can be loaded on either the Priority or the Routine Input queue.

Perform the following procedure to load controls on the *i*2000$_{SR}$ IM. Refer to the Analyzer Operations Manual for additional information.

1. Ensure the ARCHITECT *i*2000$_{SR}$ is in Running status. Refer to the Analyzer Operations Manual for additional information.
2. If in Automation Mode, change the appropriate ARCHITECT *i*2000$_{SR}$ to offline.
3. Press the “On-line key” on the keypad (refer to Keypad (6-15)) for the Interface Module to accept samples.
4. Create the control order, if necessary. Refer to the Analyzer Operations Manual.
5. Perform the following procedure to load controls on the *i*2000$_{SR}$ IM.
   a. Verify the controls are within the expiration date on the bottle label. Do not use the controls if the expiration date is exceeded.
   b. Ensure barcode label alignment is correct and meets recommended specifications.
   c. Determine the minimum sample volume required in the sample tubes as printed on the ARCHITECT Order List report. Verify at least 8mm of sample is present for aspiration of the control.
   d. Refer to the reagent manufacturer's assay-specific documentation (e.g., a package insert or reagent application sheet) for detailed, assay-specific information.
6. Load controls on the *i*2000$_{SR}$ IM.
   a. Lift the *i*2000$_{SR}$ IM relevant cover.
   b. Load tubes containing the quality control into the tube carriers.
   c. Each tube must be seated firmly against the bottom of the tube carrier and must not be tilted.
   d. Close the *i*2000$_{SR}$ IM relevant cover
   e. Controls will return to the Output queue when sample aspiration has been completed.
   f. If in Automation System mode, return the ARCHITECT *i*2000$_{SR}$ to on-line.

Status and Diagnostics

Before routing samples to the $i2000_{SR}$, ensure Analyzer is connected to the Automation as described in the following procedure:

1. Press “Overview” button
2. Select the “$i2000_{SR}$” button from “Overview” screen.
3. A pop-up with the following options list displays:
   - Status (6-29)
   - Settings (6-30)
   - Gates (6-31)
   - Diagnostics - IM Communication, BCR & Belts (6-33)
   - Diagnostics - Lamp & LED (6-34)
   - Belt Motors (6-35)
   - Firmware Versions (6-36)
4. To access to each ARCHITECT $i2000_{SR}$ screen select “$i2000_{SR}$” from “Overview” screen and choose the related option.

NOTE: To allow displaying all the items in each screen, select the “Refresh” button.

NOTE: Before selecting any Diagnostics command, make sure the Module is in Off-line status.

Each allowable option that can be selected is described here below.

Status

Select “Status”. The “Status” screen will display a list box containing information about the ARCHITECT *i*2000$_{SR}$ Interface Module as described below.

Table 6.5: Status listbox

Item	Description
Room for Empty Carriers	Number of empty carriers currently allowed to enter the Interface Module.
Node ID	Address of board accommodating Interface Module software.
Room for Routine Samples	Number of routine sample tubes currently allowed to enter the Interface Module.
Room for STAT Samples	Number of priority sample tubes currently allowed to enter the Interface Module.

NOTE: Common Function buttons are also available in this screen.

Settings

Select “Settings”. The “Settings” screen will display a list box containing information about the ARCHITECT *i*2000$_{SR}$ Interface Module as described below.

Table 6.6: Settings listbox

Item	Description
Error Code	Error code related to the Interface Module.
Routine Queue Length	Number of sample tubes currently allowed to be at the Routine Queue.
STAT Queue Length	Number of sample tubes currently allowed to be at the STAT Queue.

Table 6.7: Settings function buttons

Screen	Function button	Access level	Description
Architect *i*2000$_{SR}$ - Settings	Queue Length	FSE	Allows to set the maximum number of carrier at STAT/Routine Queue.
	BCR Config	FSE	Allows to configure the Barcode Reader device.

NOTE: Common Function buttons are also available in this screen.

Gates

Select “Gates”. The “Gates” screen will display a list box containing information about the ARCHITECT *i*2000$_{SR}$ Interface Module as described below.

Table 6.8: Gates listbox

Item	Description
Barcode Reader Gate	Displays carrier RF-ID and sample tube ID at Barcode Reader Gate, if any.
Divert Gate	Displays carrier RF-ID and sample tube ID at Divert Gate, if any.
Error Code	Error code related to the Interface Module.
Output Gate	Displays carrier RF-ID and sample tube ID at Pre Barcode Reader Gate, if any.
Prepare Gate	Displays carrier RF-ID and sample tube ID at Prepare Gate, if any.
Priority Input Gate	Displays carrier RF-ID and sample tube ID at Priority Input Gate, if any.
Return Gate	Displays carrier RF-ID and sample tube ID at Return Gate, if any.
Routine Gate	Displays carrier RF-ID and sample tube ID at Routine Gate, if any.
Routine Input Gate	Displays carrier RF-ID and sample tube ID at Routine Input Gate, if any.
STAT Gate	Displays carrier RF-ID and sample tube ID at STAT Gate, if any.

Table 6.9: Gates function buttons

Screen	Function button	Access level	Description
Architect i2000$_{SR}$ - Gates	Pass	Supervisor	Allows the pass of a single carrier at the selected gate. A pop-up displays the list of gates.
	Divert	Supervisor	Allows the pit-stop of a single carrier at the selected gate. A pop-up displays the list of gates.
	Rotate	Supervisor	Allows the rotation of a carrier at the Barcode Reader Gate.
	Close	Supervisor	Allows to close the Stop Gate preventing carriers routing on main lane.
	Open	Supervisor	Allows to open the Stop Gate restoring carriers routing on main lane.
	Read SID	Supervisor	Allows the read of SID on a tube at the Barcode Reader Gate.
	Actuator	Supervisor	Allows to command the Actuator device. A pop-up displays the list of available commands.

NOTE: Common Function buttons are also available in this screen.

Diagnostics - IM Communication, BCR & Belts

Select “Diagnostics - IM Communication, BCR & Belts”. The “Diagnostics - IM Communication, BCR & Belts” screen will display a list box containing information about the ARCHITECT *i*2000$_{SR}$ Interface Module as described below.

Table 6.10: Diagnostics - IM Communication, BCR & Belts listbox

Item	Description
Analyzer Error	Error Code related to the Analyzer.
Barcode Reader Error	Error Code related to the Barcode Reader.
Disk 1 High Error Threshold	Shows the error threshold for the disk motor high current value.
Disk 1 High Warning Threshold	Shows the warning threshold for the disk motor high current value.
Disk 1 Low Error Threshold	Shows the error threshold for the disk motor low current value.
Disk 1 Low Warning Threshold	Shows the warning threshold for the disk motor low current value.
Disk Error	Error code related to the disk motor.
Error Code	Error code related to the Interface Module.
Initialization Module Error	Error code related to initialization problems.
Interface Module Error	Error code related to the Interface Module.
Keypad Error	Error code related to the Interface Module Keypad.
Notification Error	Error code related to the automation software.
Tag Reader Error	Error code related to the Tag Reader antennas.
Manual Load/Unload Belt Error	Error code related to the belt manual Load/Unload.
Transport-Sampling Belt Error	Error code related to the Transport-Sampling Belt.

Table 6.11: Diagnostics - IM Communication, BCR & Belts function buttons

Screen	Function button	Access level	Description
Architect $i2000_{SR}$ - Diagnostics - IM Communication, BCR & Belts	Read SID	Supervisor	Allows the read of SID on a tube at the Barcode Reader Gate.
	Belt Motors	Supervisor	Allows to power On/Off the belt motors.
	CLI Port	Supervisor	Allows to test communication on the second serial port.

NOTE: Common Function buttons are also available in this screen.

Diagnostics - Lamp & LED

Select “Diagnostics - Lamp & LED”. The “Diagnostics - Lamp & LED” screen will display a list box containing information about the ARCHITECT $i2000_{SR}$ Interface Module as described below.

Refer to Table 6.10 Diagnostics - IM Communication, BCR & Belts listbox (6-33).

Table 6.12: Diagnostics - Lamp & LED function buttons

Screen	Function button	Access level	Description
Architect $i2000_{SR}$ - Diagnostics - Lamp & LED	Red Lamp	Supervisor	Allows to turn On/Off the Red Lamp.
	Yellow Lamp	Supervisor	Allows to turn On/Off the Yellow Lamp.
	Green Lamp	Supervisor	Allows to turn On/Off the Green Lamp.
	RI LED	Supervisor	Allows to turn On/Off the Routine Input LEDs. A pop-up displays the list of available command.
	PI LED	Supervisor	Allows to turn On/Off the Priority Input LEDs. A pop-up displays the list of available command.
	Keypad LED	Supervisor	Allows to turn On/Off the Keypad LED.

NOTE: Common Function buttons are also available in this screen.

Belt Motors

Select “Belt Motors”. The “Belt Motors” screen will display a list box containing information about the ARCHITECT $i2000_{SR}$ Interface Module as described below. The left gauge on screen indicates the Transport-Sampling Belt, and the right one indicates the Manual Load/Unload Belt.

Table 6.13: Belt Motors listbox

Item	Description
High Error Threshold	Displays the error threshold for high current of motor.
High Warning Threshold	Displays the warning threshold for high current of motor.
Low Error Threshold	Displays the error threshold for low current of motor.
Low Warning Threshold	Displays the warning threshold for low current of motor.

Table 6.14: Belt Motors function button

Screen	Function button	Access level	Description
Architect $i2000_{SR}$ - Belt Motors	Belt Motors	Supervisor	Allows to power On/Off the belt motors.

NOTE: Common Function buttons are also available in this screen.

Firmware Versions

Select “Firmware Version”. The “Firmware Version” screen will display a list box containing information about the ARCHITECT *i*2000$_{SR}$ Interface Module as described below.

Screen list box displays values related to module Firmware Version currently running on the System. The information is for FSE use only.

Item	Description
Error Code	Error code related to the Interface Module.

NOTE: Common Function buttons are also available in this screen.

ARCHITECT *i*2000$_{SR}$ Pipettor Calibration

The following steps describe how to prepare the ARCHITECT *i*2000$_{SR}$ IM to pipettor calibration.

1. Change the appropriate ARCHITECT *i*2000$_{SR}$ to off-line in Automation software. Refer to specific section about Module Status.
2. Ensure the ARCHITECT *i*2000$_{SR}$ is in Ready or Stopped status. Refer to the ARCHITECT System Operations Manual for additional information.
3. Press Stop on the *i*2000$_{SR}$ IM keypad.
4. Press the Run key on the *i*2000$_{SR}$ IM keypad to initialize the *i*2000$_{SR}$ IM.
5. All *i*2000$_{SR}$ IM carriers are transported to the Output queue and checked at the Output queue tube detect sensor. If a sample tube is detected, initialization stops until the sample tube is removed.
6. Automation System carriers detected on the *i*2000$_{SR}$ IM during initialization are routed to the Automation System.
7. Initialization is complete when six carriers have been moved to the Priority Input queue, 11 carriers have been moved to the routine Input queue and 4 carriers have been moved to the Output Queue.
8. Remove all sample tubes from the *i*2000$_{SR}$ IM.
9. Refer to ARCHITECT GUI for calibration instructions.

*i*2000$_{SR}$ IM Troubleshooting

This paragraph provides further information about scenarios that may occur with *i*2000$_{SR}$ IM operations and the corrective actions to solve the error conditions (see Table 6.2 i 2000$_{SR}$ IM Lamp status (6-12)) that may occur with *i*2000$_{SR}$ IM in Standalone Mode.

- **Flashing Red light, Stop - Error condition (Second Serial Port communication problem).**
  Analyzer not Responding On Second Serial Port. Check LAS communication cable on second serial port. Perform the necessary steps to power off and power on the Analyzer, refer to Analyzer Operations Manual. If the problem persists, contact the Service Assistance.
- **Solid Red and Flashing Yellow light, Stop - Error condition (Sample Presentation error or a Sample Presentation error followed by a Sample Queue error occurred on i 2000SR IM in Standalone Mode).**
  The error occurs when, after processing a Sample Tube, the Carrier ID read at the process Gate does not match the Carrier ID read before Sample Tube processing, possibly generating incorrect Test Results for this Sample.
  a. Select “Stop” on the *i*2000$_{SR}$ IM keypad.
  b. Select “Run” on the *i*2000$_{SR}$ IM keypad.
  c. Remove all samples from the *i*2000$_{SR}$ IM at the Output Queue.
  d. At the Analyzer Interface Module where the error took place, delete all Test Results for the sample tubes by following the Instrument-specific operating procedures.
  e. Perform the necessary steps on the Middleware and/or Host LIS to prevent the automatic or manual release of erroneous Test Results for the Sample (Contact your Middleware/Host LIS vendor for further information).
  f. Order a rerun from the Middleware/Host LIS for all the Tests ordered for the Samples in the Interface Module.
  g. When the Interface Module Lamp returns green reload the Sample tubes to repeat all Tests.
  NOTE: Failure to repeat all Tests could result in erroneous and misleading Test Results. If the condition message recurs, contact the Service Assistance.
- **Flashing Red and Flashing Yellow light, Stop - Error condition (Sample Presentation error or a Sample Presentation error followed by a Sample Queue error occurred on i 2000SR IM in Standalone Mode and Second Serial Port communication problem**.
  The error occurs when, after processing a Sample Tube, the Carrier ID read at the process Gate does not match the Carrier ID read before Sample Tube processing, possibly generating incorrect Test Results for this Sample in the meanwhile the Analyzer not Responding On Second Serial Port.
  a. Check LAS communication cable on second serial port. Perform the necessary steps to power off and power on the Analyzer, refer to Analyzer Operations Manual. If the problem persists, contact the Service Assistance.

b. Select “Stop” on the *i*2000$_{SR}$ IM keypad.

c. Select “Run” on the *i*2000$_{SR}$ IM keypad.

d. Remove all samples from the *i*2000$_{SR}$ IM at the Output Queue.

e. At the Analyzer Interface Module where the error took place, delete all Test Results for the sample tubes by following the Instrument-specific operating procedures.

f. Perform the necessary steps on the Middleware and/or Host LIS to prevent the automatic or manual release of erroneous Test Results for the Sample (Contact your Middleware/Host LIS vendor for further information).

g. Order a rerun from the Middleware/Host LIS for all the Tests ordered for the Samples in the Interface Module.

h. When the Interface Module Lamp returns green reload the Sample tubes to repeat all Tests.
NOTE: Failure to repeat all Tests could result in erroneous and misleading Test Results. If the condition message recurs, contact the Service Assistance.