

# Affirm<sup>®</sup>

Breast Biopsy Guidance System



## User Guide

MAN-10641 Revision 001

**HOLOGIC<sup>®</sup>**



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Breast Biopsy Guidance System

## User Guide

For Software Versions 1.8

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**HOLOGIC<sup>®</sup>**

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# Chapter 1 Introduction

## 1.1 Preface

Read all of this information carefully before installation and operation. Follow all warnings and precautions as stated in this manual. Keep this manual available during procedures. Physicians should tell patients about all potential risks and adverse events described in this manual with respect to the operation of the system.

## 1.2 Intended Use

**RxOnly** Caution: Federal law restricts this device to sale by or on the order of a physician.

The Affirm™ breast biopsy guidance system is an optional accessory for the Selenia® Dimensions® digital mammography system. Its function is to localize lesions accurately in the breast in three dimensions. It is intended to provide targeting guidance for interventional procedures such as biopsy, presurgical localization, or treatment devices.

## 1.3 User Profiles

### 1.3.1 Mammography Technologist

- Meets all requirements that apply to the location in which the Mammography Technologist operates.
- Completed training on the mammography system.
- Has training in mammography positions.
- Understands stereotactic breast biopsy procedures.
- Understands how to operate a computer and its peripherals.
- Can lift 20 pounds to shoulder height with two hands (necessary for upright stereotactic systems).
- Understands sterile procedures.

### 1.3.2 Radiologists, Surgeons

- Meets all requirements that apply to the location in which the Physician operates.
- Understands stereotactic breast biopsy procedures.
- Understands how to operate a computer and its peripherals.
- Understands sterile procedures.
- Gives local anesthesia.
- Understands basic surgical procedures for core biopsy.

### 1.3.3 Medical Physicist

- Meets all requirements that apply to the location in which the Medical Physicist operates.
- Understands mammography.
- Has experience with digital imaging.
- Understands how to operate a computer and its peripherals.

## 1.4 Training Requirements

In the United States, users must be Registered Radiologic Technologists meeting criteria to perform mammography. The mammography users must meet all applicable MQSA personnel requirements under FDA guidelines for conventional and digital mammography.

The user has options available for training, which include but are not limited to:

- Onsite applications training by a Hologic Clinical Services Specialist
- Onsite on the job training also known as peer training

Additionally, the user manual is a guide for directions on how to use the system.

All users must make sure that they receive training on correct operation of the system before use on patients.

Hologic does not accept the responsibility for injury or damage from wrong system operation.

## 1.5 Quality Control Requirements

Perform all Quality control tests within the correct time frame.

## 1.6 Where to Find Technical Description Information

Technical description information is available in the Service Manual.

## **1.7 Warranty Statement**

Except as otherwise expressly stated in the Agreement: i) Equipment manufactured by Hologic is warranted to the original Customer to perform substantially in accordance with published product specifications for one (1) year starting from the date of shipment, or if Installation is required, from the date of Installation (“Warranty Period”); ii) digital imaging mammography x-ray tubes are warranted for twenty-four (24) months, during which the x-ray tubes are fully warranted for the first twelve (12) months and are warranted on a straight-line prorated basis during months 13-24; iii) replacement parts and remanufactured items are warranted for the remainder of the Warranty Period or ninety (90) days from shipment, whichever is longer; iv) consumable Supplies are warranted to conform to published specifications for a period ending on the expiration date shown on their respective packages; v) licensed Software is warranted to operate in accordance with published specifications; vi) Services are warranted to be supplied in a workman-like manner; vii) non-Hologic Manufactured Equipment is warranted through its manufacturer and such manufacturer’s warranties shall extend to Hologic’s customers, to the extent permitted by the manufacturer of such non-Hologic Manufactured Equipment. Hologic does not warrant that use of Products will be uninterrupted or error-free, or that Products will operate with non-Hologic authorized third-party products.

## **1.8 Technical Support**

Refer to the title page of this manual for contact information for product support.

## **1.9 Product Complaints**

Report any complaints or problems in the quality, reliability, safety, or performance of this product to Hologic. If the device has caused or added to patient injury, immediately report the incident to Hologic.

## **1.10 Hologic Cybersecurity Statement**

Hologic continuously tests the current state of computer and network security to examine possible security problems. When necessary, Hologic provides the updates to the product.

For Cybersecurity Best Practices documents for Hologic products, refer to the Hologic Internet site.

## 1.11 Descriptions of Warnings, Cautions, and Notes

Descriptions of Warnings, Cautions, and Notes used in this manual:



---

**WARNING!**

**The procedures that you must follow accurately to prevent possible dangerous or fatal injury.**

---

---



---

**Warning:**

**The procedures that you must follow accurately to prevent injury.**

---



---

**Caution:**

**The procedures that you must follow accurately to prevent damage to equipment, loss of data, or damage to files in software applications.**

---



---

**Note**

Notes show additional information.

---



## Chapter 2 General Information

### 2.1 System Overview

The Affirm breast biopsy guidance system attaches to the C-arm of the Selenia Dimensions mammography system. The Affirm biopsy system has two main components:

- Biopsy Guidance Module
- Biopsy Control Module

A compatible biopsy device attaches to the biopsy guidance module device mount. During a procedure, motors in the Affirm system move the biopsy device in X and Y directions. Z-axis movement is manual.

The Tube Arm on the Selenia Dimensions system moves separately from the Compression Arm to permit the acquisition of stereotactic and tomosynthesis images for targeting. The types of images you can acquire are contingent on your Selenia Dimensions system licensing. Refer to the Selenia Dimensions system *User Guide* for complete information about that system. The types of biopsies you can perform are contingent on your Affirm system licensing. To see all your installed licenses, go to **Licensing in System Tools**.

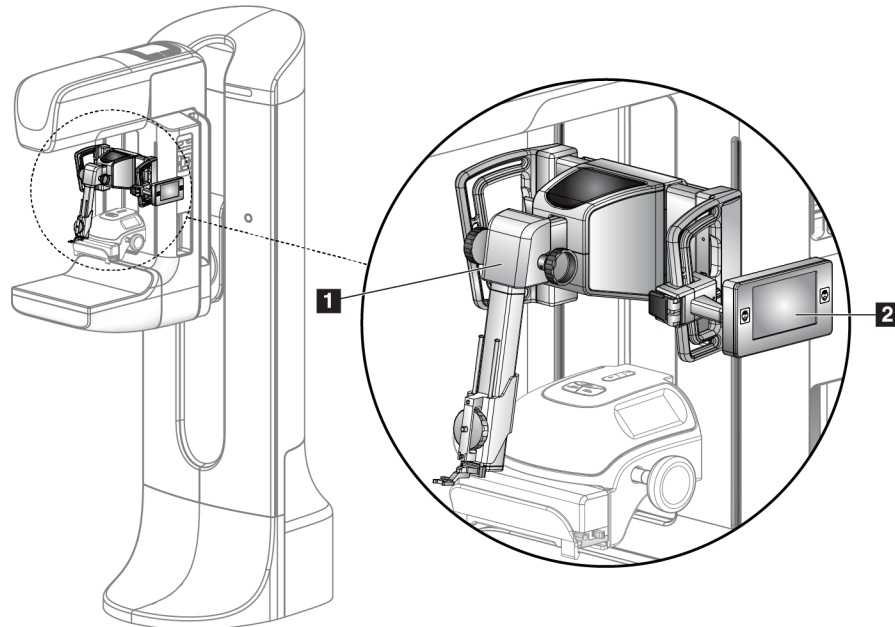


Figure 1: Affirm Biopsy System on the Selenia Dimensions Mammography System

#### Figure Legend

1. Biopsy Guidance Module
2. Biopsy Control Module

## 2.2 How to Handle the Biopsy Guidance Module



**Caution:**

To prevent damage or alignment problems with the Needle Guidance Stage, be careful when you move the Biopsy Guidance Module.

---

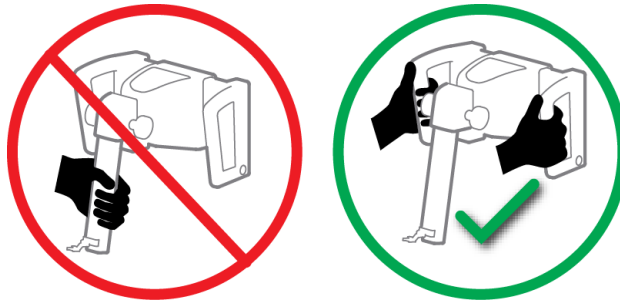


**Caution:**

The Affirm Biopsy Guidance Module weighs 15 pounds. When you move it, be sure to have a secure grip on the handles.

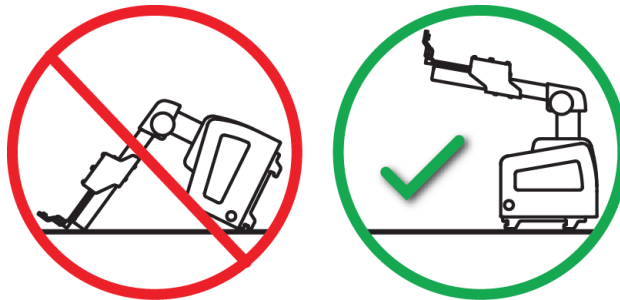
---

Only lift the Biopsy Guidance Module with the handles.



*Figure 2: How to Lift the Biopsy Guidance Module*

When the Biopsy Guidance Module is not in use, put the device on its back.



*Figure 3: How to Store the Biopsy Guidance Module*

## 2.3 Safety

Read and understand this manual before you use the system. Keep this manual available during the patient exams.

*Always* follow all the instructions in this manual. Hologic does not accept the responsibility for injury or damage from incorrect system operation. Hologic can schedule training at your site.

The system has protective devices, but the Technologist must understand how to safely operate the system. The Technologist must remember the health hazards of x rays.

Do not connect this equipment to any system or component not described in this manual. A combination of components must have the data to validate the safety of the patient, personnel, and the environment. Any additional certification becomes the responsibility of the user.

## 2.4 Warnings and Precautions



---

---

**WARNING!**

**After power failure, remove the patient from the system before you apply power.**

---

---



---

**Warning:**

**You make x rays when you use the procedures in this manual.**

---



---

**Warning:**

**C-arm movement is motorized.**

---



---

**Warning:**

**The Tube Arm movement is motorized.**

---



---

**Warning:**

**Only qualified users can use this system.**

---



---

**Warning:**

**Do not use this equipment if any faults or problems are detected.**

---



---

**Warning:**

**The user must schedule preventive maintenance by an approved Service Engineer.**

---

---



**Warning:**

**The user or a Service Engineer must correct problems before the system is used.**

---



**Warning:**

**Do not leave the patient unattended during the procedure.**

---



**Warning:**

**Keep the hands of the patient away from all buttons and switches at all times.**

---



**Caution:**

**To prevent damage or misalignment, be careful when you move the Affirm system.**

---



**Caution:**

**The Affirm Biopsy Guidance Module weighs 15 pounds. When you move it, be sure to have a secure grip on the handles.**

---



**Note**

The system does not have any parts that are serviced by the user.

---

## 2.5 Compliance

This section describes the system compliance requirements and the responsibilities of the manufacturer.







### 2.5.1 Compliance Requirements

The manufacturer is responsible for the effects of safety, reliability, and performance of this equipment, with the following provisions:

- The equipment is used in accordance with the *User Guide*.
- Assembly operations, extensions, re-adjustments, modifications, or repairs are performed by authorized persons only.

## 2.6 Symbols

This section describes the International Symbols on this system.

	Potential Equalization terminal
	Protective Earth terminal
	"On" and "Off" (power) for the computer and display.
	Discard electrical and electronic equipment separately from standard waste. Send decommissioned material to Hologic or contact your service representative.
	Manufacturer
	Date of Manufacture

## 2.7 Label Locations

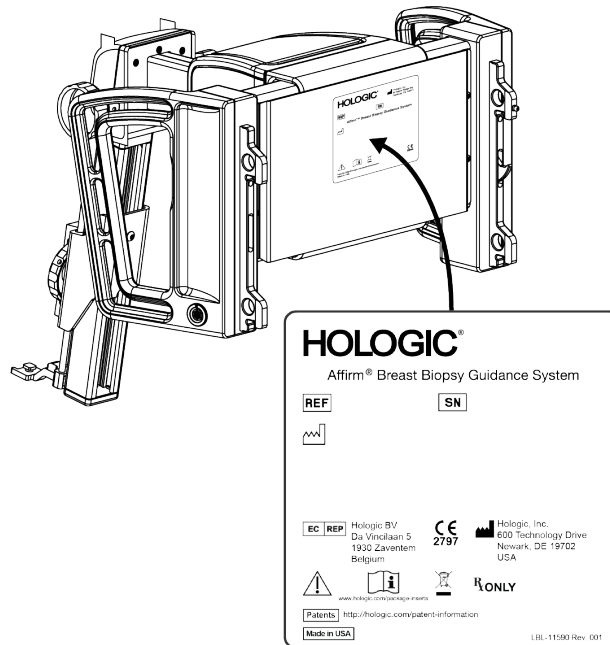


Figure 4: Label Location



## Chapter 3 How to Install or Remove the System

### 3.1 Installation of Components

#### 3.1.1 Biopsy Guidance Module Components

The Biopsy Guidance Module installs on the front of the C-arm of the Selenia Dimensions system. A lock lever (item 8) secures this module in position. A cable (item 7) connects to the Selenia Dimensions C-arm for operation of the biopsy guidance system.

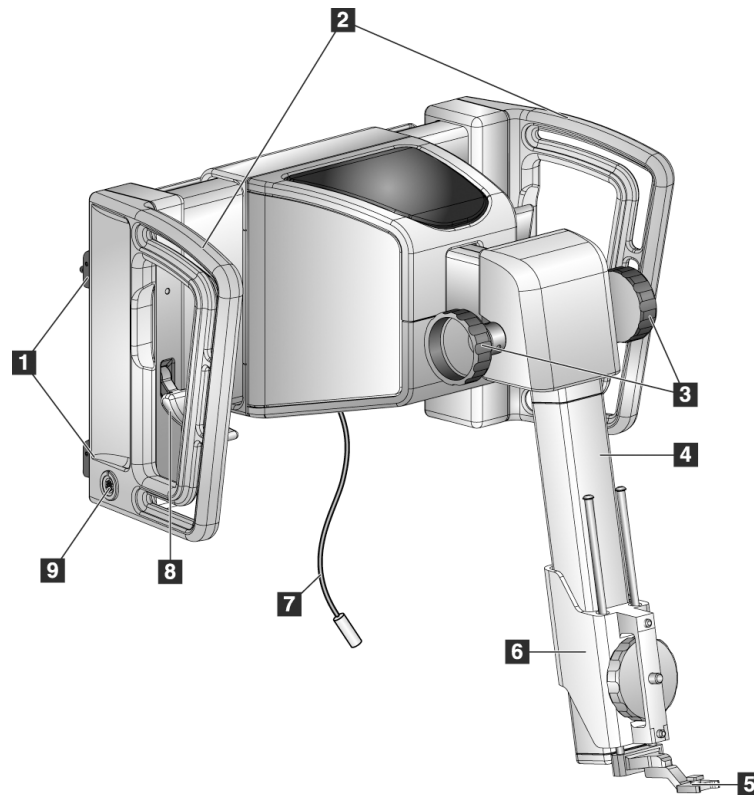


Figure 5: Biopsy Guidance Module

Table 1: Components of the Biopsy Guidance Module

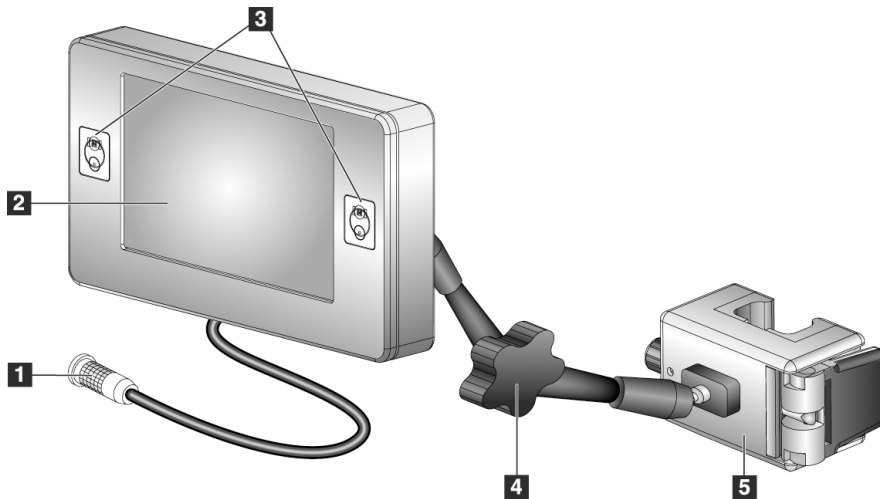
#	Name	Description
1	Attachment Hooks	Two on each side hold the Biopsy Guidance Module on the Selenia Dimensions Gantry.
2	Handles	One on each side. Hold both handles to lift the Biopsy Guidance Module.
3	Z-axis Control Knobs	Rotate either knob to move the biopsy device along the Z-axis.
4	Z-axis Slide Rail	Holds the biopsy device holder and provides the track for Z-axis movements.
5	Front Needle Guide	Attaches to the Needle Guide Mount on the Biopsy Device Holder.
6	Biopsy Device Holder	Holds the biopsy device. Moves along the Z-axis Slide Rail when a Z-axis Control Knob is rotated.

*Table 1: Components of the Biopsy Guidance Module*

#	Name	Description
7	Cable	Connects to the Selenia Dimensions system to bring power to the Affirm system.
8	Lock Lever	One on each side. Engage both levers to lock the Biopsy Guidance Module in position and on the Selenia Dimensions Gantry.
9	Receptacle	Accepts the cable from the Biopsy Control Module.

### 3.1.2 Biopsy Control Module Components

The Biopsy Control Module attaches to either the left or right handle on the Biopsy Guidance Module with a bracket (item 5). The display screen (item 2) is a touch screen for the user to perform the desired tasks. Motor Enable buttons (item 3) on either side of this module (and at the rear) activate motorized movement of the biopsy device.



*Figure 6: Biopsy Control Module*

*Table 2: Components of the Biopsy Control Module*

#	Name	Description
1	Cable	Connects to the Biopsy Guidance Module.
2	Display Screen	Shows targets, system status, the name of the biopsy device, and safety margins. Touch screen buttons permit option selection.
3	Motor Enable Buttons	Front and back button pairs on either side of the display. Press the front and back buttons of either side at the same time to activate motor movement.
4	Articulating Arm Lock and Release	Rotate to release the lock and adjust the module. Rotate in the opposite direction to lock the arm and hold the module in the new position.
5	Attachment Bracket	Attaches to either handle of the Biopsy Guidance Module.



### 3.1.3 Attach the Biopsy Guidance Module

You can install the Biopsy Guidance Module with the Selenia Dimensions system power on or off.



**Caution:**

To prevent damage or alignment problems with the Needle Guidance Stage, be careful when you move the Biopsy Guidance Module.



**Caution:**

The Affirm Biopsy Guidance Module weighs 15 pounds. When you move it, be sure to have a secure grip on the handles.

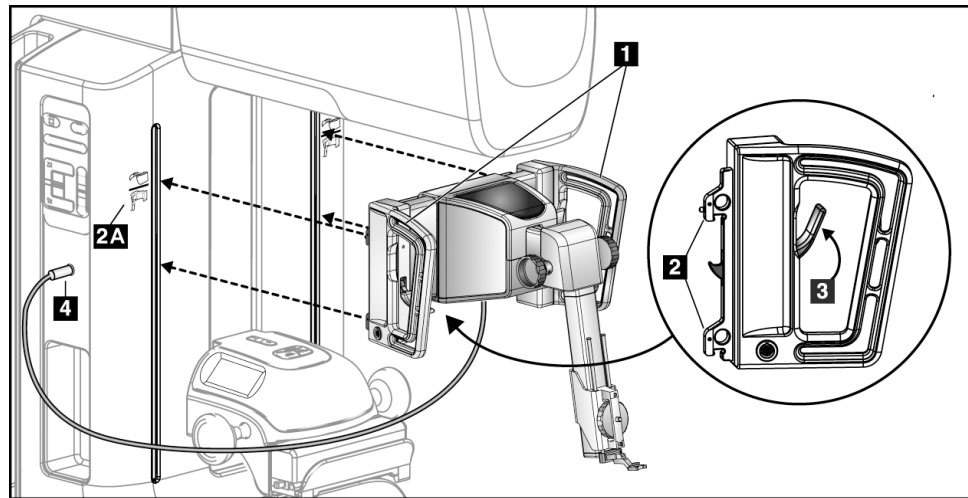
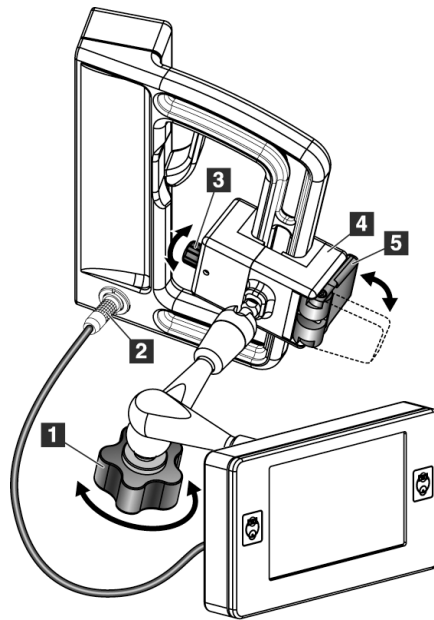


Figure 7: Installation of the Biopsy Guidance Module

1. Move the Compression Device down.
2. Hold the Biopsy Guidance Module by both handles.
3. Slide the top hooks (item 2) of the Biopsy Guidance Module into the slots marked with the Affirm system icon (item 2A) on the front of the Selenia Dimensions C-arm. Make sure the top and bottom hooks attach to the Selenia Dimensions C-arm.
4. Push the Lock Levers (item 3) on the Biopsy Guidance Module into the Up position to lock the Module against the Selenia Dimensions C-arm.
5. Align the red dot on the Biopsy Guidance Module cable (item 4) with the red dot on the receptacle on the side of the Selenia Dimensions C-arm. Connect the cable to the receptacle.

### 3.1.4 Attach the Biopsy Control Module

The Biopsy Control Module attaches to either the left or right handle of the Biopsy Guidance Module.



**Figure Legend**

1. Lock Knob for the Articulating Arm
2. Biopsy Control Module Cable
3. Clamp Adjust Knob
4. Attachment Bracket
5. Attachment Bracket Lock

*Figure 8: Attachment of the Biopsy Control Module*

1. Release the Articulating Arm Lock Knob (see the previous figure, item 1).
2. Position the Attachment Bracket (item 4) until the side with the Lock (item 5) is on the front side of the handle.
3. Attach the Lock side of the Attachment Bracket around the lower part of the handle.
4. Slide the opposite side of the Attachment Bracket around the handle. The Bracket attaches on to the patient handle.
5. If necessary, adjust the Clamp Adjust Knob (item 3).
6. Push the Attachment Bracket Lock to the locked position (item 5).
7. Make sure that this adjustment holds the bracket in position. If the bracket moves, or you cannot get the bracket lock fully into the locked position, adjust with the Clamp Adjust Knob (item 3).
8. Connect the Biopsy Control Module Cable (item 2) to the receptacle on the Biopsy Guidance Module.

### Adjust the Bracket Height

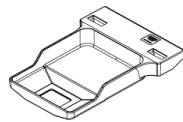
1. Release the Attachment Bracket Lock (see the previous figure, item 5).
2. Slide the bracket to the required height.
3. Push the Attachment Bracket Lock into the locked position.

### Adjust the Biopsy Control Module Position

1. Release the Lock Knob for the Articulating Arm (see the previous figure, item 1).
2. Tilt or change the current angle of the Biopsy Control Module.
3. Rotate the Lock Knob to lock the Biopsy Control Module in the new position.

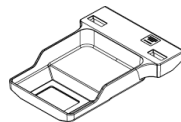
## 3.2 Installation and Removal of Accessories

### 3.2.1 Biopsy Compression Paddles



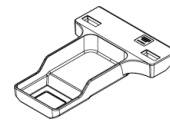
5x5 cm

Standard Biopsy  
Paddle



6x7 cm

Standard Biopsy  
Paddle



5x5 cm

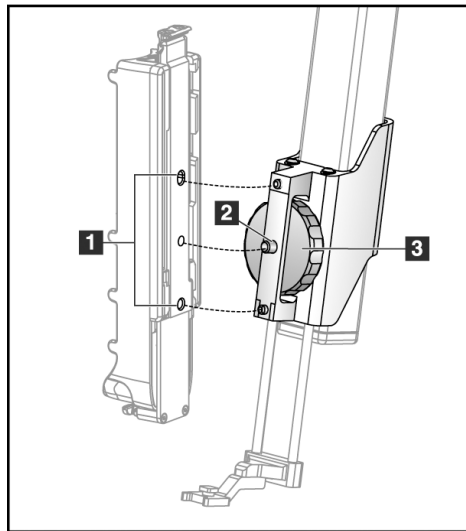
Axillary Biopsy  
Paddle

The biopsy compression paddles attach to the compression device on the Selenia Dimensions system. Refer to the *Selenia Dimensions System User Guide* for instructions on installation and removal of the paddles.

### 3.2.2 Biopsy Device Holder

To install a biopsy device holder:

1. Align the holes (top and bottom) in the holder with the guide pins on the mount.
2. Align the center hole with the mount screw.
3. Turn the thumbwheel on the mount to attach the device holder.



#### Figure Legend

1. Biopsy Device Holes
2. Mount Screw
3. Thumbwheel

To remove a biopsy device holder:

1. Turn the thumbwheel on the mount to release the device holder.
2. Remove the device holder from the mount.

### 3.2.3 Needle Guides



**Warning:**

---

**Always use sterile techniques when you use Needle Guides during the patient procedures.**

---



**Warning:**

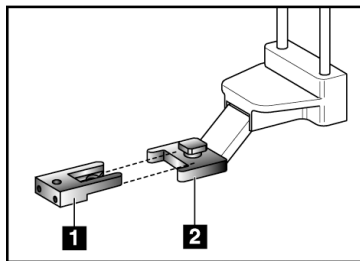
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**It is important to install the device correctly. Be sure to insert the needle through the top and bottom Needle Guides.**

---

To install a disposable Needle Guide:

1. Align the Needle Guide so that the raised-square side of the Needle Guide fits between the two lobes of the Needle Guide Mount.
2. Slide the open area of the U-shape in the Needle Guide around the pin in the Needle Guide Mount.
3. Push the Needle Guide in until it locks into position.



*Figure 9: How to Install the Needle Guides*

#### Figure Legend

1. Needle Guide
2. Needle Guide Mount



#### Note

The Needle Guides can look different from the Needle Guide shown.

---

To remove a disposable Needle Guide:

1. Remove the biopsy device from the Z-axis Slide Rail.
2. Pull the Needle Guide away from the pin and remove from the Needle Guide Mount.
3. Discard the Needle Guide in accordance with local regulations.

### 3.2.4 Tabletop Stand for the Affirm System



**Caution:**

**The Affirm system Tabletop Stand is not for mobile applications.**

To place the Affirm biopsy system on the optional stand, refer to the following figure.

1. Move the device mount and needle guide to the highest upper position as shown in **A**.
2. Disconnect the biopsy guidance module cable from the Selenia Dimensions C-arm.
3. Remove the Affirm Biopsy Guidance Module along with the Biopsy Control Module, if present, from the Selenia Dimensions system.



**Caution:**

**To prevent damage or alignment problems with the Needle Guidance Stage, be careful when you move the Biopsy Guidance Module.**



**Caution:**

**The Affirm Biopsy Guidance Module weighs 15 pounds. When you move it, be sure to have a secure grip on the handles.**

4. Place the Affirm system on the Tabletop Stand as shown in **B**.

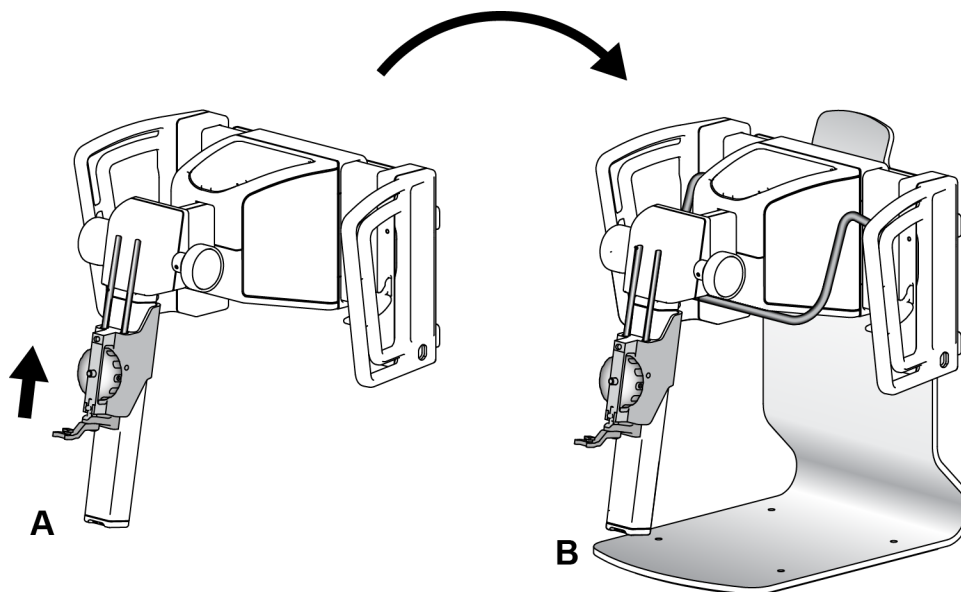


Figure 10: Affirm System Tabletop Stand

### 3.3 Removal of Main Components

#### 3.3.1 Biopsy Control Module

To remove the Biopsy Control Module from the Biopsy Guidance Module:

1. Disconnect the cable of the Biopsy Control Module from the Biopsy Guidance Module.
2. Release the bracket lock.
3. Remove the Biopsy Control Module from the Biopsy Guidance Module.
4. Store the Biopsy Control Module in a protected location.

#### 3.3.2 Biopsy Guidance Module



**Caution:**

To prevent damage or alignment problems with the Needle Guidance Stage, be careful when you move the Biopsy Guidance Module.

---



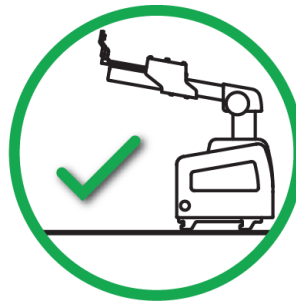
**Caution:**

The Affirm Biopsy Guidance Module weighs 15 pounds. When you move it, be sure to have a secure grip on the handles.

---

To remove the Biopsy Guidance Module from the Selenia Dimensions C-arm:

1. Disconnect the Biopsy Guidance Module Cable from the Selenia Dimensions C-arm.
2. Hold a handle of the Biopsy Guidance Module with one hand while you release the Locking Levers with the other hand.
3. Put a hand on each handle and lift the Biopsy Guidance Module from the slots in the Selenia Dimensions C-arm.
4. Store the Biopsy Guidance Module and Biopsy Control Module in a safe location. Make sure that you put the unit on its back (hooks down).







## Chapter 4 User Interface - Biopsy Control Module

### 4.1 Biopsy Control Module Screens

#### 4.1.1 Home Screen

The *Home* screen shows the name or initials of the user who logs in and any error messages. The **Go** button takes the user to the *Target Guidance* screen.

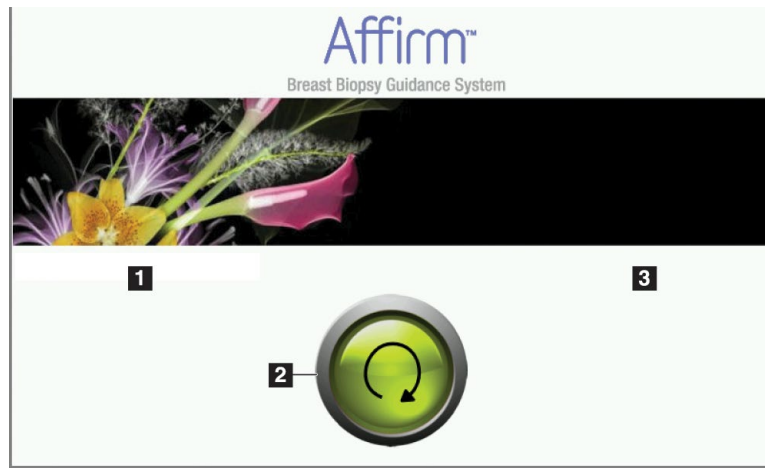


Figure 11: Home Screen

#### Figure Legend

1. User ID Area
2. **Go to Target Guidance** Button
3. Error Message Area

### 4.1.2 Target Guidance Screen

The following figure shows the main screen of the Biopsy Control Module. This screen shows the current position of the biopsy device, the selected target coordinates and the Cartesian difference between the two positions.

The buttons in the *Target Guidance* screen allow the user to go to the previous screen (item 3), go to the screen for target selection (item 2), go to the screen for motorized movement of the biopsy device in the X and Y axes (item 1), select the C-Arm Mode or Stereo Mode for the C-arm rotation (item 5), and cancel an audible signal (item 7).

The display area (item 4) of the *Target Guidance* screen shows the difference between the current position of the biopsy device and the target coordinates, the status of the system (item 10), the biopsy device installed on the system (item 8), and the safety margins (item 9).

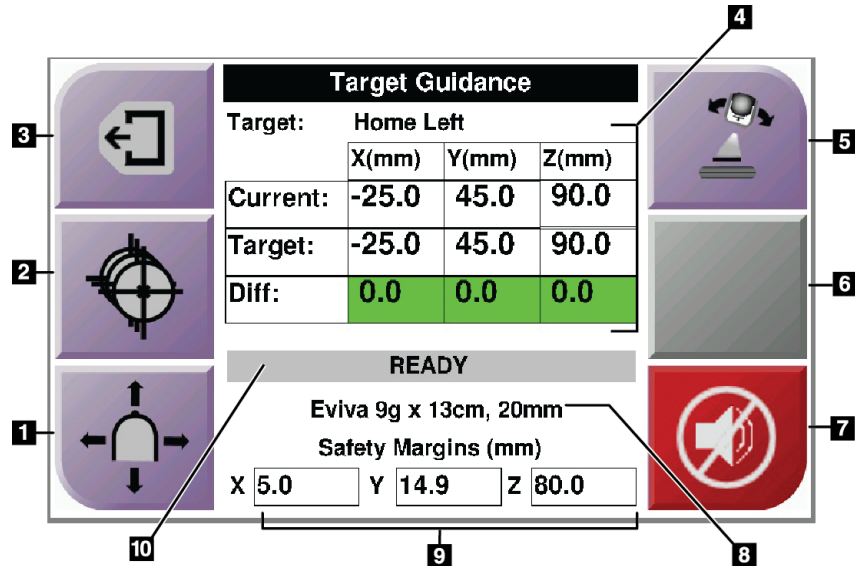


Figure 12: Target Guidance Screen

### Figure Legend

1. Go to the *Jog Mode* screen
2. Go to the *Select Target* screen
3. Go to the previous screen
4. Target Information
5. Switch between C-Arm Mode or Stereo Mode (when the system is set for Manual C-Arm Stereo Mode).
6. This button is gray and disabled.
7. Mute or Enable Sound (An icon displays on this button and an alarm sounds when there is a system fault. See [The Sound Button](#) on page 25.)
8. Selected Biopsy Device
9. Safety Margins
10. System Status



### Note

The X, Y, and Z cells in the screen can change color as target coordinates change. See [Colored Cells in the Screens](#) on page 24.

### Colored Cells in the Screens

#### Green Cells

When all Diff cells are green, the biopsy device is in the correct position for the selected target. When the biopsy device is fired, the target is at the center of the aperture of the device.

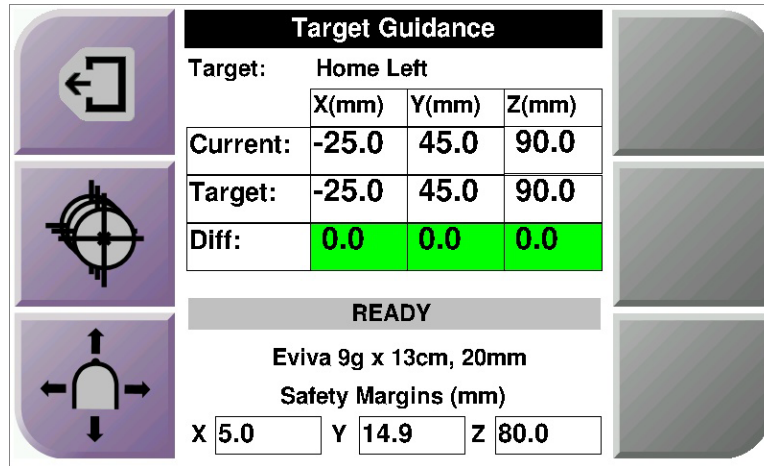


Figure 13: Green Differential Cells

#### Yellow and Red Cells

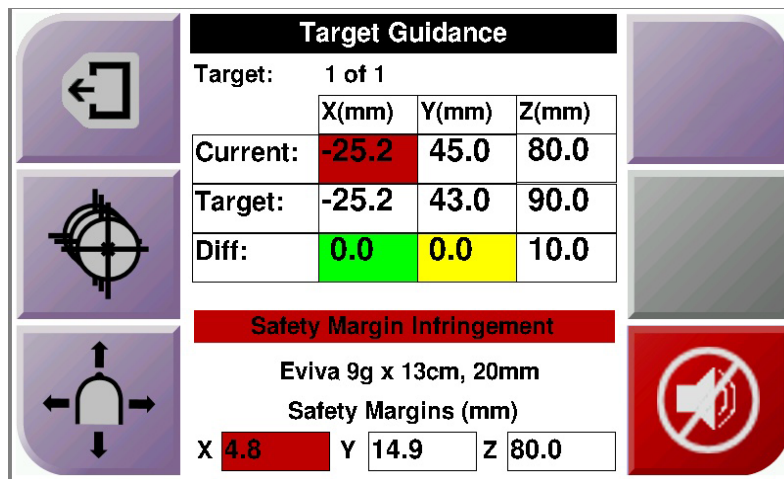




Figure 14: Yellow and Red Cells

- **Yellow** indicates that the biopsy device is in the correct position for that axis, but you must move the device to the final Z-position. When the biopsy device is in the final Z-position, the yellow cell changes to green.
- **Red** indicates a problem with a safety margin. The **Sound** button appears and the system makes repeated beeps. Make adjustment in the axis indicated by red. When the cell is not red, the device is within the safety limits.

### The Sound Button

The **Sound** button is enabled when there is a system fault. When the **Sound** button displays, you can control system sounds related to alarms and motor movements of the biopsy device.

*Table 3: How to Use the **Sound** Button*

Sound	
 <p><i>Figure 15: Alert Sounds Are Audible</i></p>	<ul style="list-style-type: none"> <li>• When a safety margin is violated, this mute icon shows and the system repeats a beep sound.</li> <li>• To stop the beep sounds, press the <b>Sound</b> button. All system beep sounds are muted, and the icon on the button changes.</li> <li>• When you correct the safety margin violation, the icon on the button disappears.</li> <li>• If you press the button and do not correct the system fault within two minutes, the system beep sounds are enabled automatically.</li> </ul>
 <p><i>Figure 16: Alert Sounds Are Muted</i></p>	<ul style="list-style-type: none"> <li>• When this icon appears on the <b>Sound</b> button, you have the option to enable the system beep sounds.</li> <li>• To enable the system beep sounds, press this button.</li> <li>• If you do not press this button, system beep sounds are enabled automatically within two minutes after this icon displays.</li> </ul>

### 4.1.3 Jog Mode Screen

This screen allows the user to manually overwrite the targeting coordinates of the Biopsy Guidance Module. The arrow buttons in the *Jog Mode* screen change the Jog value of the X and Y coordinates. Other buttons in this screen allow the user to go to the *Target Guidance* Screen (item 5), and cancel (item 7) an audible signal that sounds when there is a problem with a safety margin.

The display area (item 4) of the *Jog Mode* screen shows the difference between the current position of the biopsy device and the target coordinates, the status of the system (item 10), the biopsy device installed on the system (item 8), and the safety margins (item 9).



**Warning:**

---

**Red cells indicate a problem with a safety margin. Patient injury or equipment damage may occur if you continue. Make adjustments to be within safety limits.**

---

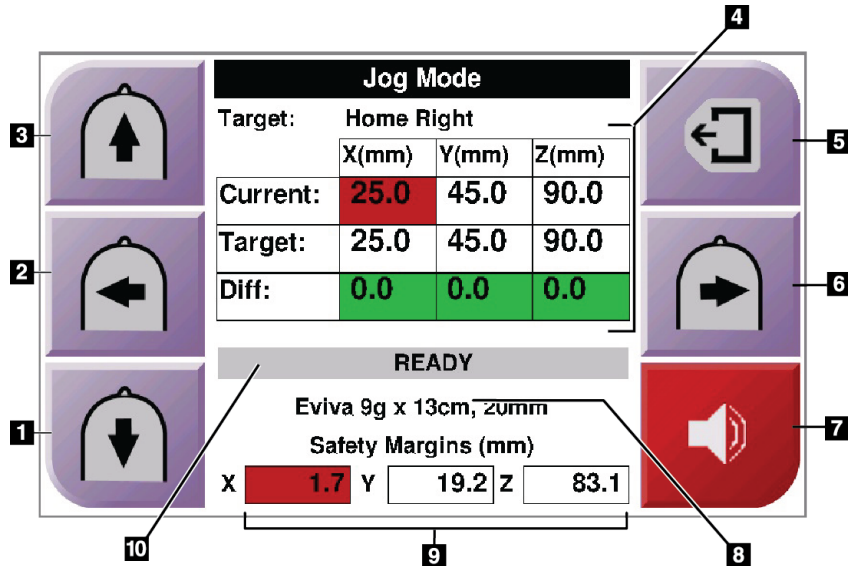


Figure 17: Jog Mode Screen

### Figure Legend

1. Change Y-axis Jog value in negative direction
2. Change X-axis Jog value in negative direction
3. Change Y-axis Jog value in positive direction
4. Target Information
5. Go to the previous screen
6. Change X-axis Jog value in positive direction
7. Mute or Enable Sound (An icon displays on this button and an alarm sounds when there is a problem. See [The Sound Button](#) on page 25 for more information about the Sound button.)
8. Selected Biopsy Device
9. Safety Margins
10. System Status

### 4.1.4 Select Target Screen

This screen allows the user to select a different target for biopsy guidance or to move to one of the Home positions. The buttons in the *Select Target* screen allow the user to go to the previous screen (item 1), go to the *Target* screen (item 2), or go to the Left or Right Home Position (item 3 or item 6).

The display area (item 4) of the *Select Target* screen shows one of more sets of target coordinates. The name of the biopsy device that was selected also displays (item 5).

To move the biopsy device to one of the targets shown in this screen:

1. Press one of the target coordinates icons or the **Home** buttons.  
The system changes to the *Target Guidance* screen.
2. Press and hold a right or left **Motor Enable** button pair on the Biopsy Control Module. The needle moves to the X and Y positions.

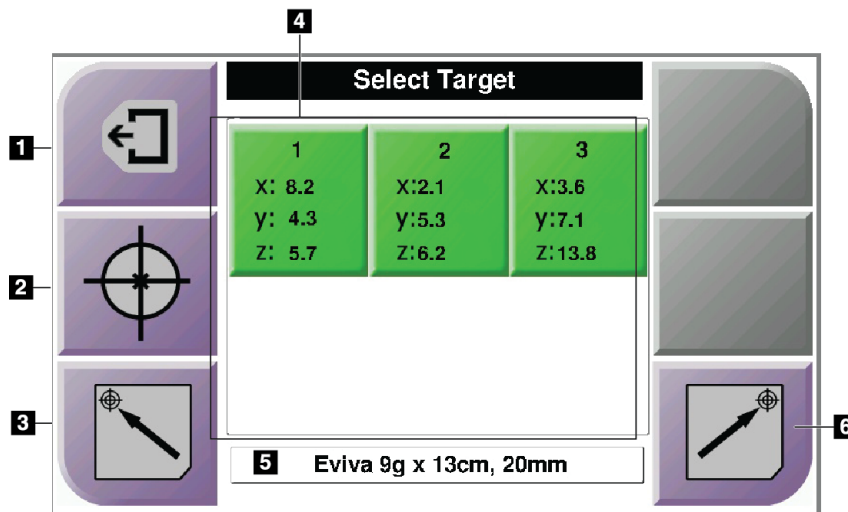


Figure 18: Select Target Screen

#### Figure Legend

1. Go to the previous screen
2. Go to the *Target Guidance* screen
3. Go to the Home Left Position
4. Target Coordinates
5. Biopsy Device
6. Go to the Home Right Position



#### Note

You must simultaneously press both switches of a right or left **Motor Enable** pair to start the motor movement.



## Chapter 5 Biopsy

### 5.1 Biopsy Views

When used with the Selenia Dimensions stereotactic system, biopsy procedures require stereo views, which are images taken at +15° and -15° angles. Collectively, these images are called a stereo pair. The word "stereo" in the biopsy procedures refers to the +15° and -15° projections.

When used with the Selenia Dimensions tomosynthesis system, a tomosynthesis image acquisition is acquired to determine the three-dimensional (X-Y-Z) Cartesian coordinates of the region of interest.

#### 5.1.1 How to Add a Biopsy View

To Add a Biopsy View:

1. In the *Procedure* screen, select the **Add View** button to display the *Add View* screen.

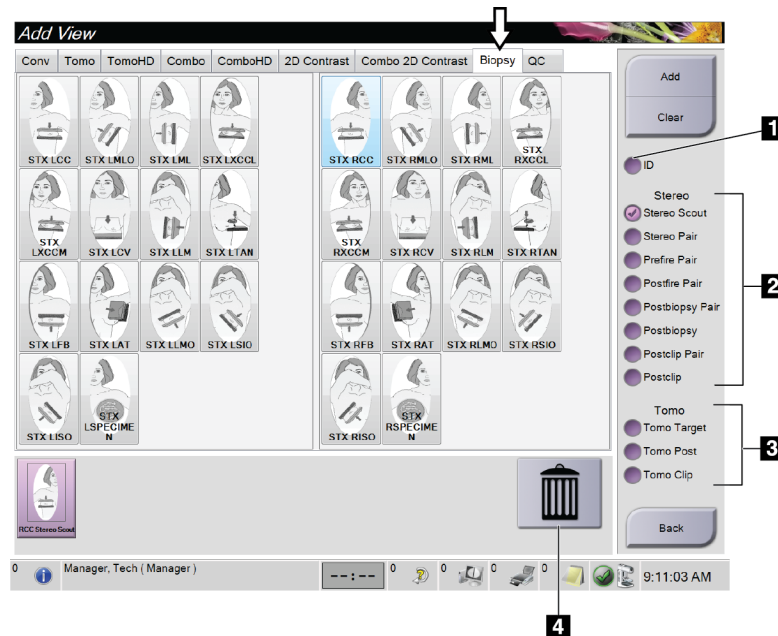


Figure 19: Biopsy Tab in the Add View Screen

#### Figure Legend

1. Implant Displaced
2. Stereo View Modifiers
3. Tomosynthesis View Modifiers
4. **Trash Can Icon**

2. Select the **Biopsy** tab.
3. Select the view, then select a View Modifier from the right panel of the screen.



### Note

The Biopsy Stereo and Tomosynthesis View Modifiers show only when the system has licenses for tomosynthesis and biopsy.

4. Select the **Add** button. A thumbnail image for each view that you select appears in the bottom of the screen.

### To Remove a Biopsy View:

- To remove a single view from the added list: in the bottom panel of the screen, select the view thumbnail then select the **Trash Can** icon.
- To remove all views from the added list: select the **Clear** button.

## 5.1.2 How to Edit a Biopsy View

Use the *Edit View* screen to assign a different view to an image.

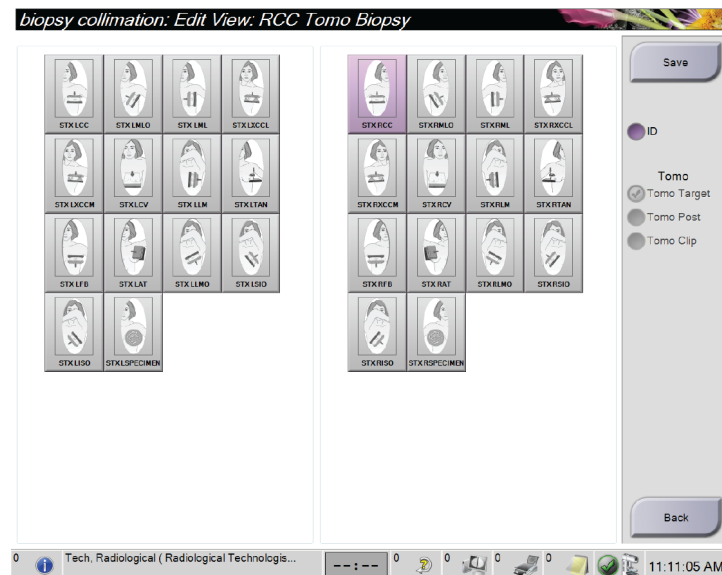


Figure 20: Edit (Biopsy) View Screen

### To Edit a View:

1. In the *Procedure* screen, select an exposed thumbnail image view.
2. Select the **Edit View** button to access the *Edit View* screen.
3. Select the view, then select the View Modifiers from the right side of the screen.
4. Select the **Save** button.
5. When the *Update Successful* dialog box appears, select the **OK** button.

## 5.2 C-Arm Stereo Modes

Acquire the stereo images in either the Auto C-arm Stereo Mode or the Manual C-arm Stereo Mode. Make the C-arm Stereo Mode selection at the Acquisition Workstation (refer to [How to Select the C-Arm Stereo Mode for Image Acquisition](#) on page 33).

### 5.2.1 C-Arm Rotation in the C-Arm Stereo Modes

The mechanics of C-arm rotation for stereotactic image acquisition is different in Auto and Manual C-arm Stereo Modes.

**Note**

C-arm vertical movement and rotation are disabled when compression force is applied. A service engineer can configure the lockout force from 22 Newtons (5 pounds) to 45 Newtons (10 pounds).

---

**In Auto C-Arm Stereo Mode**

In the Auto C-arm Stereo Mode, the *Target Guidance* screen does not show the **C-arm Stereo Mode** button. In the Auto C-arm Stereo mode, the system automatically lets the C-arm move separately from the Tube Arm to acquire the stereo images. When the **X-ray** button is pressed to start stereo image acquisition, the Tube Arm automatically moves to the first 15° angle, acquires the image, rotates to the opposite 15° angle and acquires that image.

**Note**

The option to position the Tube Arm for the first stereo image is in the System Status menu (refer to [How to Select the C-Arm Stereo Mode for Image Acquisition](#) on page 33). The Tube Arm automatically rotates to the selected 15° angle. This option operates in both C-arm Stereo modes.

---

### In Manual C-Arm Stereo Mode



In Manual C-arm Stereo Mode, the **C-arm Stereo Mode** button shows on the *Target Guidance* screen. The default is Stereo Mode. See the table that follows for a description of the button function.



**Note**

The **C-arm Stereo Mode** button shows when the system is set for Manual C-arm Stereo Mode. In Auto C-arm Stereo Mode, this button does not show.

Table 4: The C-arm Stereo Mode Button

Icon	Description of Function
 <p>Figure 21: Stereo Mode</p>	<ul style="list-style-type: none"> <li>• The Tube Arm rotates while the C-arm remains in position.</li> <li>• Select Stereo Mode to acquire stereo images (when the system is set for Manual C-arm Stereo Mode).</li> </ul>
 <p>Figure 22: C-arm Mode</p>	<ul style="list-style-type: none"> <li>• The C-arm and Tube Arm rotate together.</li> <li>• Select C-arm Mode to rotate the C-arm and Tube Arm together to a new patient positioning angle.</li> </ul>

1. After you set the patient positioning angle (with the C-arm Mode engaged), press the **C-arm Stereo Mode** button on the *Target Guidance* screen to put the C-arm into Stereo Mode.
2. Rotate the Tube Arm to the first 15° angle.
3. Press the **X-ray** button and acquire the first 15° image.
4. Rotate the Tube Arm to the opposite 15° angle.
5. Press the **X-ray** button and acquire the opposite 15° image.


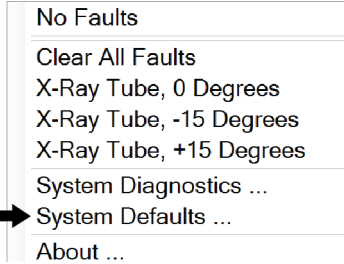
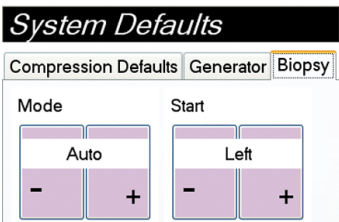


**Note**

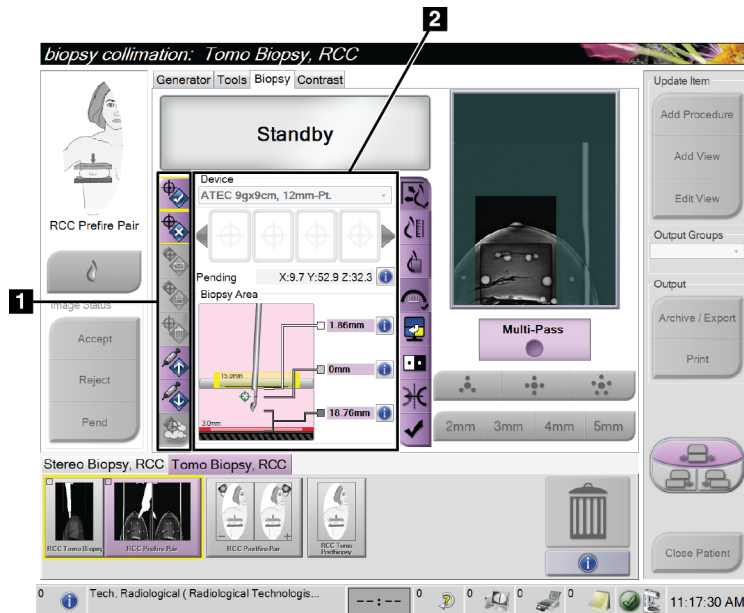
Keep the **X-ray** button pressed until the exposure stops. An audible beep indicates that image acquisition has finished.

### 5.2.2 How to Select the C-Arm Stereo Mode for Image Acquisition

Table 5: How to Select the C-Arm Stereo Mode

<p>1. Select the <b>System Status</b> icon.</p>	 <p>Figure 23: System Status Icon</p>
<p>2. Select <b>System Defaults</b> from the <i>System Status</i> menu.</p>	 <p>Figure 24: System Status Menu</p>
<p>3. Select the <b>Biopsy</b> tab in the <i>System Defaults</i> screen. 4. Select <b>Auto</b> or <b>Manual</b> from the Mode section.</p>	 <p>Figure 25: System Defaults Screen</p>

### 5.3 Biopsy Tab



#### Figure Legend

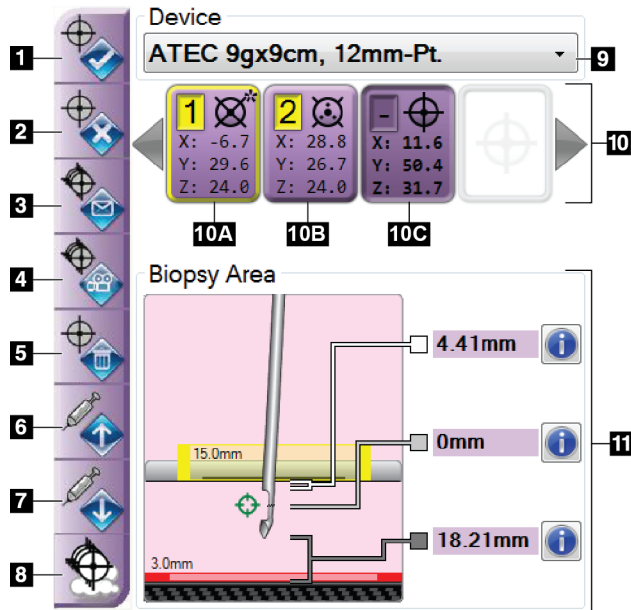
1. Target Function Buttons
2. Biopsy Options Area

Figure 26: The Biopsy Tab

When you select the **Biopsy** tab, the Biopsy Options appear. The Biopsy Options area of the screen shows information about the targets and the biopsy device installed on the system. The buttons on the left side of this area let you send selected targets to the Biopsy Control Module. Refer to [Biopsy Staging](#) on page 35 for information about the button functions and data fields on the **Biopsy** tab.

### 5.3.1 Biopsy Staging

The buttons in the Biopsy Options area communicate target information to the Biopsy Control Module. The area on the right side of the buttons shows the selected target and biopsy device.



**Figure Legend**

1. Create Target Button
2. Reject Target Button
3. Resend Target Button
4. Project Target Button
5. Delete Target Button
6. Move Z-Target Up Button
7. Move Z-Target Down Button
8. Show/Hide Targets Button
9. Device
10. Target Set
11. Status Indicators

Figure 27: Function Buttons and Data on the Biopsy Tab

**Figure Legend**

1. **Create Target** assigns target point(s) and creates a target icon in the target set (item 10). After you assign your target, click the button a second time to accept the target and transfer the target coordinates to the Biopsy Control Module.
2. **Reject Target** removes the selected target from the list of target icons if that target was not yet accepted.
3. **Resend Target** resends the selected target coordinates to the Biopsy Control Module.
4. **Project Target** shows the selected target on an additional stereo pair on the Preview screen.
5. **Delete Target** deletes the selected target from the list of target icons if that target was accepted.
6. **Move Z-Target Up** moves the final position of the needle away from the Breast Platform and the graphic of the lesion downward. The values for the safety margins change accordingly.
7. **Move Z-Target Down** moves the final position of the needle toward the Breast Platform and the graphic of the lesion upward. The values for the safety margins change accordingly.
8. **Show/Hide Targets** shows/hides all target icons in the list of targets.

9. **Device** shows the name of the attached biopsy device that was selected from the related drop-down list.



---

**Warning:**

**Patient injury can occur if the device you select in the Biopsy tab is not the device that is installed on the system.**

---



---

**Note**

If your biopsy device does not show in the drop-down menu, contact Technical Support. A Service Engineer must enter the device specifications.

---

10. **Target Set** displays all the biopsy targets that have been assigned and/or accepted in this session. You can generate multiple targets as long as the total of all target points are six or less. Use the left and right arrow keys to scroll through the target set if necessary.
  - a. Target #1 - The "1" indicates the target number that has been assigned and is accepted (based on the creation order). A yellow border around the target indicates that it is the active target at the Biopsy Control Module. A single point in the crosshairs indicates that it is a single point target. An asterisk (\*) indicates that the target coordinates were later changed at the Biopsy Control Module.
  - b. Target #2 - The "2" indicates that the target number has been assigned and is accepted (based on the creation order). Multiple points in the crosshairs indicate that it is a multiple point target generated by the Multi-Pass feature (see [Lesion Targeting Using Multi-Pass](#) on page 40).
  - c. Target blank - No number indicates that the coordinates were assigned but not accepted (a user has not yet clicked the **Create Target** button a second time). A single point in the crosshairs indicates that it is a single point target. A depressed target icon indicates that it is the active target *on the user interface*.



---

**Note**

The coordinates displaying on a Multi-Pass target icon represent the center point. Right click and hold on the target icon to view the coordinates of all of the points.

---



11. **Status Indicators** show the distance information:

- The distance between the Biopsy Paddle and the top of the aperture.
- The distance of the target from the center of the aperture.
- The distance from the needle tip (post fire) to the breast platform.
- The distance from the Biopsy Paddle to the needle tip.

The distance indicator fields change colors with movement of the needle.

- Purple indicates that it is safe to proceed.
- Red indicates that the current coordinates exceed the safety margin.
- Yellow warns of being near the safety limit.



**Note**

To make a target active *for the Affirm system*, select a target icon from the target set and click the **Resend** button.

## 5.4 Stereotactic Lesion Targeting



**Note**

You can use the Zoom tool (in the Tools tab or View Actual Pixels button) to magnify the area of interest in an image.



**Note**

If the exam data in the image blocks detection of the lesion, click the Information icon in the Tools tab to hide the data.



**Note**

Make sure that the biopsy device is out of the imaging area.



**Note**

The overall targeting accuracy is equal to the combined targeting accuracy of the Biopsy Guidance Module and the biopsy device. When using the biopsy device, the maximum deviation from the target coordinate will not be more than 2 mm from either side.

1. Select the **Accept** button to save the stereo images.



**Note**

Your Service representative can configure the system to Auto-Accept new images.

2. Click in the area of interest of the lesion in one of the stereo images.
3. Click the other stereo image, then click in the area of interest of the lesion.

4. Select the **Create Target** button to save the target. The active target set automatically transmits to the Biopsy Control Module with the creation of each new target.
5. Repeat this procedure to create multiple targets (a maximum of six).



### Note

The target that shows on the *Target Guidance* screen of the Biopsy Control Module is the last target created. The target or target set that shows on the *Select Target* screen is the last target or target set sent to the Biopsy Control Module.

---



### Note

To target a lesion, you can also use the Scout and one of the stereo images.

---

### 5.4.1 Verify the Position of the Biopsy Device

1. If desired, acquire the pre-fire images as necessary to identify the correct needle position.
  - Verify the needle position.
  - If necessary, make adjustments.
2. If applicable, fire the biopsy device.
3. If desired, acquire the post-fire images.
  - Verify the needle position.
  - If necessary, make adjustments.
4. If desired, acquire specimens with the attached biopsy device.
5. If desired, acquire post procedure images.

## 5.5 Lesion Targeting with Tomosynthesis

Lesion targeting for tomosynthesis guided procedures requires system licenses for tomosynthesis and biopsy.



### Note

Make sure that the biopsy device is out of the imaging area.

---



### Note

The overall targeting accuracy is equal to the combined targeting accuracy of the Biopsy Guidance Module and the biopsy device. When using the biopsy device, the maximum deviation from the target coordinate will not be more than 2 mm from either side.

---

1. Acquire the tomosynthesis target (scout) image.
  - If your system is set to Auto Accept, the tomosynthesis target (scout) cine runs briefly and then the system automatically accepts the image.
  - If Auto Accept is not set, the cine stops after two passes through the slice deck (or if the **Accept** button is pressed before the second cine run finishes).

2. Use the scroll wheel to scroll through the slices of the tomosynthesis target (scout) to find the best view of the lesion.
3. Click on the lesion.
  - A dash appears in the Slice Indicator beside the selected slice.
  - The X, Y, and Z values for the target are established automatically at the area of the click.
4. Select the **Create Target** button to save the target. The active target set automatically transmits to the Biopsy Control Module.
5. Repeat steps 2 through 4 to create multiple targets (a maximum of six).



---

**Note**

The target that shows on the *Target Guidance* screen of the Biopsy Control Module is the last target created. The target or target set that shows on the *Select Target* screen is the last target or target set sent to the Biopsy Control Module.

---

### 5.5.1 Verify the Position of the Biopsy Device

1. If desired, acquire the pre-fire images as necessary to identify the correct needle position.
  - Verify the needle position.
  - If necessary, make adjustments.
2. If applicable, fire the biopsy device.
3. If desired, acquire the post-fire images.
  - Verify the needle position.
  - If necessary, make adjustments.
4. If desired, acquire specimens with the attached biopsy device.
5. If desired, acquire post procedure images.

### 5.5.2 Project Targets on Post-Fire Scout Image

To project targets from the pre-fire tomosynthesis target (scout) onto the post-fire tomosynthesis target (scout), follow these steps:

1. Select the pre-fire tomosynthesis target (scout) thumbnail. The image shows in the bottom half of a 2-Up screen on the Image Display monitor.
2. Select the post-fire tomosynthesis target (scout) thumbnail. The image shows in the bottom half of the 2-Up screen.
3. Select the **Project Target** button in the Biopsy Options area to show the pre-fire targets on the post-fire tomosynthesis target (scout).

### 5.6 Lesion Targeting Using Multi-Pass

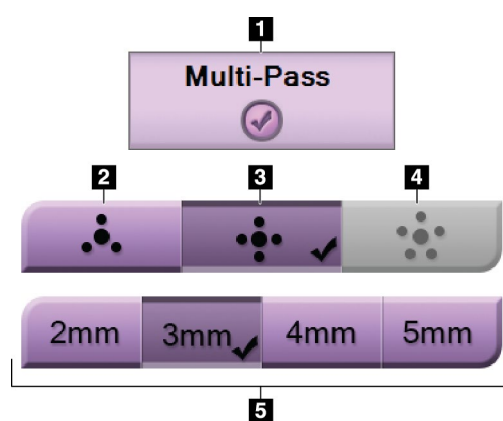


#### Note

The overall targeting accuracy is equal to the combined targeting accuracy of the Biopsy Control Module and the biopsy device. When using the biopsy device, the maximum deviation from the target coordinate will not be more than 2 mm from either side.

The Multi-Pass feature allows you to automatically generate up to five offset target points all equidistant (up to 5 mm away) from the original target.

Multi-Pass can work with either stereo or tomosynthesis biopsy images.



#### Figure Legend

- 1 - Multi-Pass Selection
- 2 - Three Offset Points
- 3 - Four Offset Points (default)
- 4 - Five Offset Points
- 5 - Offset Point Distances (3 mm is default)

Figure 28: Multi-Pass Options



#### Note

Make sure that the biopsy device is out of the imaging area.

1. Acquire a stereo pair or tomosynthesis image.
2. Locate the region of interest for the lesion. Click on the lesion, either on both stereo images or on the best slice if a tomosynthesis image.
  - A circle with crosshairs displays around the target point.
  - The X, Y, and Z values for the target are established at the lesion.
  - [Tomosynthesis images] A line appears in the Slice Indicator beside the selected slice.
3. Select the **Create Target** button. A target coordinates icon displays on the list of targets.
4. Select the **Multi-Pass** button.

5. Select the number of offset target points (three, four, or five) you require around the center target point.

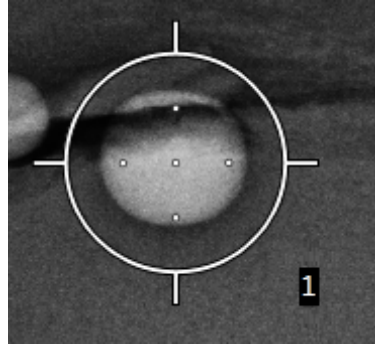


Figure 29: Four Offset Target Points Established Around Center Target Point



**Note**

Keep in mind that the center target point is included in the total target points. Choosing a "four" offset, for example, generates a total of five target points.

6. Select how far the offset target points are automatically generated from the center target point - 2 mm, 3 mm (the default), 4 mm, or 5 mm.

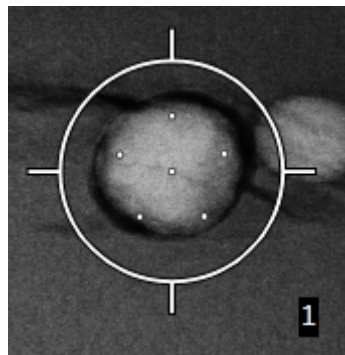


Figure 30: 3 mm Spacing of Offset Points

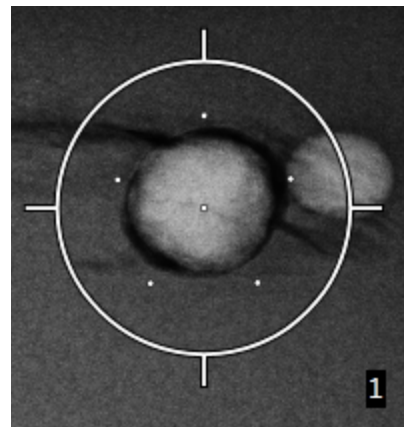


Figure 31: 5 mm Spacing of Offset Points

The crosshairs pattern for the target changes when the target is selected or deselected. See the following figures.

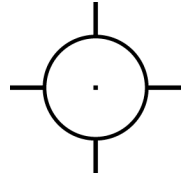


Figure 32: Single Point Target Selected

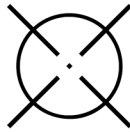


Figure 33: Single Point Target Deselected

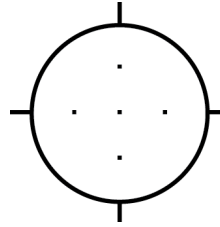


Figure 34: Multi-Pass Target Selected

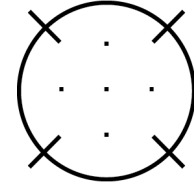


Figure 35: Multi-Pass Target Deselected

7. Select the **Create Target** button to accept the Multi-Pass target. The target becomes the active target icon on the target set and the coordinates are sent to the Biopsy Control Module.



### Note

The coordinates displaying on a Multi-Pass target icon represent the center point. Left-click and hold on the target icon to view the coordinates of all of the points.



### Note

A maximum of six target points can be generated at any one time. As the number of target points increase in the target set being created, the available Multi-Pass options change to reflect the balance of target points that are available for assignment. For example, in a scenario where a single target point has already been created, then only the "three" and "four" offset target options in Multi-Pass become available. This is because the "three" and "four" offset options are the only ones capable of generating six or less target points when totaled with the single target point.

8. The biopsy order of the target points is as follows:
  - The number displayed at the bottom right of the crosshairs circle indicates the order between target sets. The first target is labeled "1", the second is "2", and so on. See the following figure.

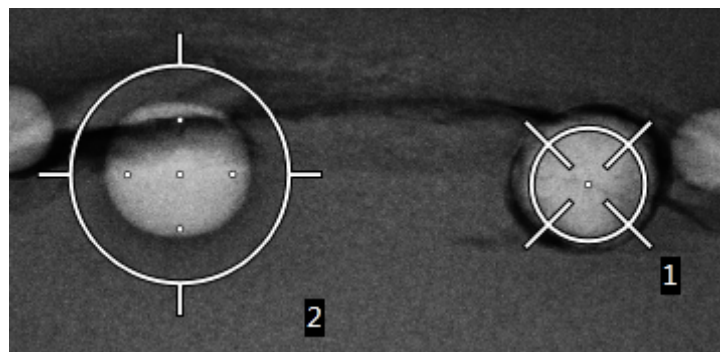


Figure 36: Biopsy Order of Target Sets

- The order within a Multi-Pass target starts at the center target point. After the center target point, the order moves to the 12 o'clock position and continues counter-clockwise through the offset points. See the following figures.

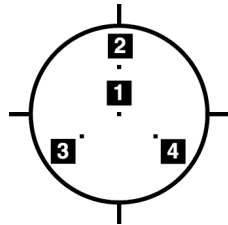


Figure 37: Biopsy Order of a Three Offset Target

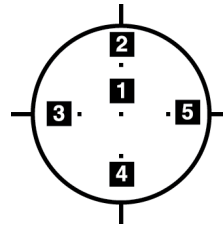


Figure 38: Biopsy Order of a Four Offset Target

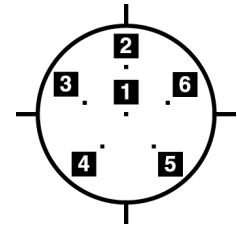


Figure 39: Biopsy Order of a Five Offset Target

9. Verify the position of the Biopsy Device (refer to [Verify the Position of the Biopsy Device](#) on page 38). If necessary, observe the targets on post-Tomosynthesis scout images (refer to [Project Targets on Post-Fire Scout Image](#) on page 39).

## 5.7 Post Biopsy

1. Put in a biopsy site marker, if desired.
2. Move the biopsy device away from the breast.
3. Acquire images as necessary.
4. Release compression.

## 5.8 Printing Stereo Images

When you select a stereo pair from the thumbnail area of the *Print* screen, the image mode buttons change. See the Selenia Dimensions system *User Guide* for instructions on use of the *Print* screen.

- Select the -15 button to show that stereo image in the display area.
- Select the +15 button to show that stereo image in the display area.
- Select the middle button to make a 2-up horizontal film with the +15 degree image on top and the -15 degree image on the bottom.

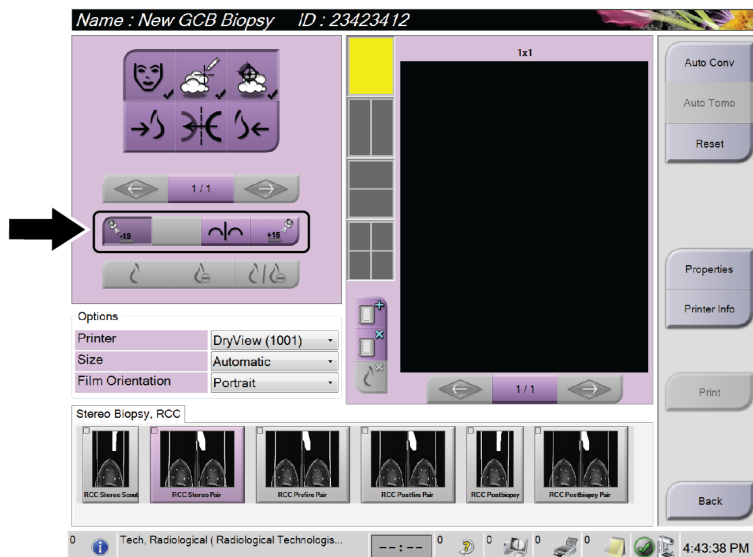


Figure 40: Stereo Pair Print Screen



## Chapter 6 Quality Assurance

### 6.1 The QAS Test

Each day that you plan to use the system, do this test one time to confirm the system accuracy. Record your results in the [QAS Test Checklist](#) on page 59.



**Note**

You can use Auto C-arm Stereo Mode or Manual C-arm Stereo Mode for the QAS Test. For more information about these modes, refer to [C-Arm Stereo Modes](#) on page 31.

#### 6.1.1 QAS Test for Standard Needle Approach



**Caution:**

If you use a QAS Needle Phantom, do not extend the needle unless it is attached to the Biopsy Guidance Module and the module is installed on the C-arm.

1. Make sure the Affirm system is installed correctly and all paddles are removed.
2. On the Acquisition Workstation, from the *Select Patient* screen, select the **Admin** button.
3. On the *Admin* screen, select the **QAS** button.

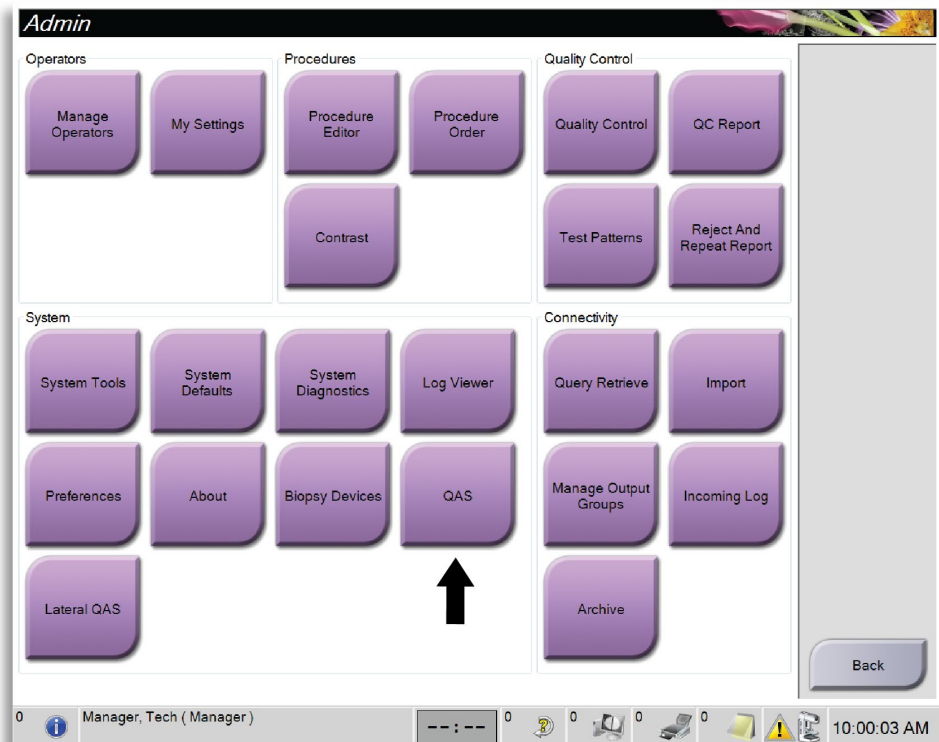


Figure 41: Admin Screen Showing QAS Test

4. On the QAS screen, select the **Biopsy** tab. Make sure that **Affirm QAS** appears in the Device field.

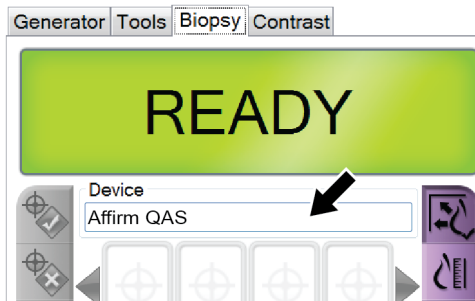


Figure 42: Device Field in the Biopsy Tab

5. Attach the QAS Phantom. (If the QAS Phantom uses a needle, fully extend the needle.)
6. Press and hold a right or left **Motor Enable** button pair on the Biopsy Control Module. The QAS Phantom moves automatically to pre-programmed X and Y positions.
7. Turn the Biopsy Device Advance/Retract knob until "0.0" displays on the Diff line in all three columns of the Biopsy Control Module.
8. Select Manual exposure mode, 25 kV, 30 mAs, Rhodium filter in the QAS screen. (If the QAS Phantom uses a needle, select the Manual exposure mode, 25 kV, 10 mAs, Rhodium filter in the QAS screen.)
9. Acquire and accept an image for the first view in the procedure. Note that the Auto-Accept feature is not enabled during the QAS procedure and that targeting on the QAS Phantom occurs automatically.
10. Select the **Create Target** button to send the target to the Biopsy Control Module. Verify that the target coordinates are within  $\pm 1$  mm of X, Y, and Z numbers as shown on the Diff values line of the Biopsy Control Module.



**Warning:**

**If the targeting coordinates are not within  $\pm 1$  mm, contact Technical Support. Do not try to adjust the system. Do not perform any biopsy procedure with the Affirm system until Technical Support indicates the system is ready for use.**

---



**Warning:**

**The user or a Service Engineer must correct problems before the system is used.**

---

11. Repeat steps 8 and 9 for all unexposed views.
12. At the Acquisition Workstation, select the **End QC** button.
13. At the Biopsy Control Module, press a **Home Position** button (Left or Right) to move the QAS Phantom to the side.
14. Remove the QAS Phantom.

## 6.2 Geometry Calibration

Geometry calibration is required semiannually. Perform this calibration using the Geometry phantom supplied with the system.

### 6.2.1 Geometry Calibration Procedure

1. Inspect the calibration phantom for damage.
2. Select **Admin > Quality Control > Technologist tab > Geometry Calibration** procedure on the Acquisition Workstation.
3. Select **Start**.
4. Follow the instructions on the screen and take the predefined exposure. Do not change the preselected techniques.
5. **Accept** the image. When you see the message that the geometry calibration was completed successfully, click **OK**.
6. Select **End Calibration**.



## Chapter 7 Care and Cleaning

### 7.1 General Information

Before each examination, clean and use a disinfectant on any part of the system and any accessory that touches a patient.

### 7.2 Preventive Maintenance Schedule

Table 6: Radiologic Technologist Preventive Maintenance Schedule

Maintenance Task Description	Each use	Daily	Semiannually
Clean the Biopsy Paddle with a disinfectant after use.*	x		
Clean the Breast Platform with a disinfectant after use.*	x		
Inspect the Biopsy Paddle for damage before use.	x		
Inspect the calibration Phantom for damage.	x		
Inspect all cables for wear and damage before use.	x		
Make sure that the Affirm system locks in position.	x		
Make sure that the Needle Guides are installed correctly before use.	x		
Make sure that all displays are illuminated.	x		
Perform QAS Procedures once each day before use of the system.		x	
Geometry Calibration (see <a href="#">Geometry Calibration</a> on page 47)			x
*Call Technical Support for the current list of recommended cleaning solutions.			



**Note**

The Preventive Maintenance Schedule for the Service Engineer is in the Service Manual.

### 7.3 For General Cleaning

Use a lint-free cloth or pad and apply a diluted dishwashing liquid.



---

**Caution:**

**Use the least possible amount of cleaning fluids. The fluids must not flow or run.**

---

If more than soap and water is required, Hologic recommends any one of the following:

- 10% chlorine bleach and water with one part commercially available chlorine bleach (normally 5.25% chlorine and 94.75% water) and nine parts water
- Commercially available isopropyl alcohol solution (70% isopropyl alcohol by volume, not diluted)
- 3% maximum concentration of hydrogen peroxide solution

After you apply any of the above solutions, use a pad and apply a diluted dishwashing liquid to clean any parts which touch the patient.



---

**Warning:**

**If a paddle touches possible infectious materials, contact your Infection Control Representative to remove contamination from the paddle.**

---



---

**Caution:**

**To prevent damage to the electronic components, do not use disinfectant sprays on the system.**

---

#### 7.3.1 How to Clean the Biopsy Control Module Screen

There are many commercially available products to clean LCD screens. Make sure the product that you select is free of strong chemicals, abrasives, bleach, and detergents that contain fluorides, ammonia, and alcohol. Follow the directions of the manufacturer of the product.

### 7.3.2 To Prevent Possible Injury or Equipment Damage

Do not use a corrosive solvent, abrasive detergent, or polish. Select a cleaning/disinfecting agent that does not damage the plastics, aluminum, or carbon fiber.

Do not use strong detergents, abrasive cleaners, high alcohol concentration, or methanol at any concentration.

Do not expose equipment parts to steam or high temperature sterilization.

Do not let liquids enter the internal parts of the equipment. Do not apply cleaning sprays or liquids to the equipment. Always use a clean cloth and apply the spray or liquid to the cloth. If liquid enters the system, disconnect the electrical supply and examine the system before returning it to use.



**Caution:**

**Wrong cleaning methods can damage the equipment, decrease imaging performance, or increase the risk of electric shock.**

---

Always follow instructions from the manufacturer of the product you use for cleaning. The instructions include the directions and precautions for the application and contact time, storage, wash requirements, protective clothing, shelf life, and disposal. Follow the instructions and use the product in the most safe and effective method.





## Appendix A System Specifications

### A.1 Affirm System Measurements

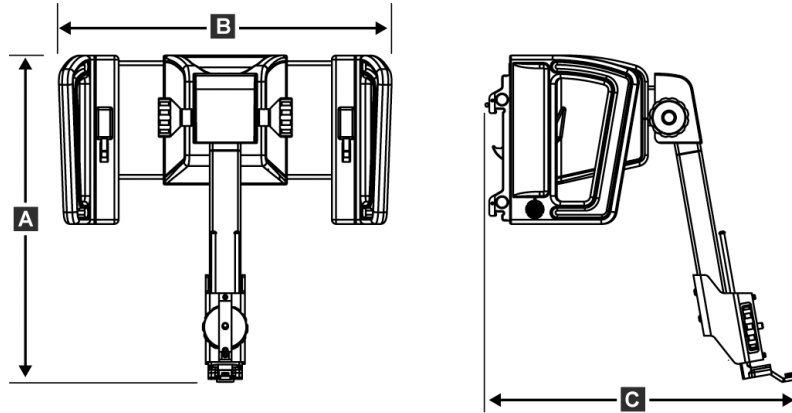


Figure 43: Affirm Biopsy Guidance Module

A. Height	37.1 cm (14.6 inches)
B. Width	37.8 cm (14.9 inches)
C. Depth	35.6 cm (14 inches)
Weight	6.8 kg (15 pounds)

### A.2 Biopsy Guidance Module

Accuracy of Biopsy Guidance Module	maximum deviation: 1 mm in either direction of target coordinate
Combined Accuracy of Biopsy Guidance Module and Biopsy Device	maximum deviation: 2 mm in either direction of target coordinate
Range of Movement	X-axis: $\pm 35$ mm Y-axis: $+ 72.8$ mm Z-axis: $+ 161$ mm
Speed of Motorized Movements	Continuous: No faster than 5 mm per second Incremental: 0.5 mm steps
Power System	Input from Selenia Dimensions system: $+ 15$ Vdc $\pm 10\%$ and $+ 5$ Vdc $\pm 10\%$ Output: $+ 12$ Vdc

### A.3 Biopsy Control Module

Display Window	Touch screen controls
Weight	3 pounds
Power System	Input from Biopsy Guidance Module: $+ 5$ Vdc $\pm 10\%$



## Appendix B System Messages and Alerts

### B.1 Audible Alerts

Table 7: Affirm System Audible Alerts

Activity	Frequency	Duration	Repeats?
At Power Up:	3	250 ms	No
Any Needle position within the safety margin limit:	1	50 ms	Yes
BGM calibrate or configuration operation, Move or Jog:			
<ul style="list-style-type: none"> <li>• If the operation is prevented</li> </ul>	3	50 ms	No
<ul style="list-style-type: none"> <li>• If the operation succeeds</li> </ul>	1	100 ms	No
Start of each Move, including Jog:	1	250 ms	No

### B.2 Error Messages

Table 8: Affirm System Error Messages

Error Message	How to Correct
No Device Select	Select a biopsy device.
No Paddle	Install a biopsy paddle.
User is not logged in	Log in at the Dimensions Acquisition Workstation.
Unit is unlatched	Put both lock levers into the locked position (see the figure <a href="#">Installation of the Biopsy Guidance Module</a> on page 13).
Unknown Error	<ol style="list-style-type: none"> <li>1. In the taskbar of the Dimensions software, select the system status icon.</li> <li>2. In the menu, select <b>Clear All Faults</b>.</li> <li>3. If the message continues to display, contact Technical Support.</li> </ol>
Unrecoverable Error	Contact Technical Support. Software must be reloaded.
Safety Margin Infringement	Move the biopsy device outside of the safety margin. Press the <b>Sound</b> button to mute the warning sound.
Calibration Required	Contact Technical Support.
Motion Fault	<ol style="list-style-type: none"> <li>1. In the taskbar of the Dimensions software, select the system status icon.</li> <li>2. In the menu, select <b>Clear All Faults</b>. Another message that is related to the cause of this error can appear.</li> <li>3. If the <i>Motion Fault</i> message continues to display, contact Technical Support.</li> </ol>

# Affirm Breast Biopsy Guidance System User Guide

## Appendix B: System Messages and Alerts

---

Table 8: Affirm System Error Messages

Error Message	How to Correct
No Device Select	Select a biopsy device.
Comm Error	<ol style="list-style-type: none"><li data-bbox="621 413 1411 489">1. In the taskbar of the Dimensions software, select the system status icon.</li><li data-bbox="621 489 1411 531">2. In the menu, select <b>Clear All Faults</b>.</li></ol> This error can occur when the manual Z-control is turned quickly.
Hardware Error	<ol style="list-style-type: none"><li data-bbox="621 581 1411 657">1. In the taskbar of the Dimensions software, select the system status icon.</li><li data-bbox="621 657 1411 699">2. In the menu, select <b>Clear All Faults</b>.</li><li data-bbox="621 699 1411 741">3. If the message continues to display, contact Technical Support.</li></ol>
Selftest Error	<ol style="list-style-type: none"><li data-bbox="621 756 1411 831">1. Disconnect the Affirm Biopsy Guidance Module cable from the Dimensions system.</li><li data-bbox="621 831 1411 907">2. Reconnect the Affirm Biopsy Guidance Module cable to the Dimensions system.</li><li data-bbox="621 907 1411 949">3. If the message continues to display, contact Technical Support.</li></ol>
Stuck Switch Fault	<ol style="list-style-type: none"><li data-bbox="621 966 1411 1041">1. Disconnect the Biopsy Control Module cable from the Biopsy Guidance Module.</li><li data-bbox="621 1041 1411 1117">2. Reconnect the Biopsy Control Module cable to the Biopsy Guidance Module.</li></ol>

## Appendix C CNR Correction for Biopsy

### C.1 CNR Correction for Stereotactic Biopsy



**Note**

System default setting is AEC Table 0 for imaging under stereotactic biopsy mode.

#### C.1.1 AEC Table 0 (Standard Stereotactic Biopsy Dose)

Compression Thickness	Prior to Software Rev 1.7.x	After Software Rev 1.7.x	
	All Detectors	Detector Serial #: XX6xxxxx	Detector Serial #: XX8xxxxx
2.0 cm	0.91	0.91	0.91
4.0 cm	1.00	1.00	1.00
6.0 cm	1.27	1.27	1.32
8.0 cm	1.76	1.76	1.88

### C.2 CNR Correction for Biopsy Under Tomosynthesis Option



**Note**

System default setting is AEC Table 0 (Tomosynthesis Option) for imaging under biopsy mode using digital breast tomosynthesis.

#### C.2.1 AEC Table 0 (Tomosynthesis Option: Standard Tomo Dose)

Compression Thickness	Prior to Software Rev 1.7.x	After Software Rev 1.7.x	
	All Detectors	Detector Serial #: XX6xxxxx	Detector Serial #: XX8xxxxx
2.0 cm	0.70	0.70	0.70
4.0 cm	0.91	0.91	0.91
6.0 cm	1.46	1.46	1.55
8.0 cm	2.37	2.37	2.78









## Glossary of Terms

### **Affirm System**

The breast biopsy guidance system for the Selenia Dimensions system

### **Biopsy Control Module**

The user control device for the breast biopsy guidance system

### **Biopsy Guidance Module**

Holds and operates the biopsy device. Responds to commands from the Biopsy Control Module to move the device into position and do the biopsy.

### **C-Arm Mode**

Lets the C-arm and Tube Arm move together to the Needle Approach angle for the Localization procedure.

### **Exposure Technique**

Combination of x ray parameters (kVp, mAs, filter) for an acquired image

### **Multi-Pass**

Allows you to automatically generate up to five offset target points all equidistant (up to 5 mm away) from the original target point

### **Needle Approach Angle**

The angle of incidence of the needle to the breast

### **QAS**

Quality Assurance Standard

### **Safety Margins**

The minimum space allowed between the biopsy device needle tip that is installed and components of the system (for example, image receptor or paddle)

### **Stereo Mode**

Lets the Tube Arm rotate for acquisition of stereotactic images while the C-arm stays in position.

### **Stereotactic Procedure**

A type of examination that allows stereotactic views at the Acquisition Workstation.

### **Stereotactic View**

A specialized image view that causes the application to capture stereotactic images

### **Stroke Margin**

The safety margin (in mm) which remains between the fired needle position and the breast platform. This margin is calculated by the system according to the "Z" coordinate, the Stroke, and the compression amount.

### **Tomosynthesis**

An imaging procedure which combines a number of projections taken at different angles. The tomosynthesis images can be reconstructed to show focal planes (slices) within the object.

### **View**

The combination of one x-ray image and a specified set of conditions for image acquisition



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