



## Choose imaging mode and start live imaging

On the "Welcome" screen:

1. Use the drop-down menu to select the desired mode.
  - **Chemi Blots** to image chemiluminescent substrates.
  - **Fluorescent Blots** to image fluorescent substrates.
  - **Nucleic Acid Gels** to image DNA and RNA gels.
  - **Protein Gels** to image visible, stained protein gels.
2. Touch  to open drawer.
3. Place sample in the center of the viewing area.
4. Touch  to close drawer.

Instrument automatically aligns, zooms, focuses, and acquires a live-view sample image.

- To image in Chemi Blots mode, proceed to "Image using Chemi Blots" on page 2.
- To image in Fluorescent Blots mode, proceed to "Image using Fluorescent Blots (FL1000 model only)" on page 3.
- To image in Nucleic Acid Gels mode, proceed to "Image using Nucleic Acid Gel" on page 4.
- To image in Protein Gels mode, proceed to "Image using Protein Gel" on page 4

## Image using Chemi Blots

1. Touch **Smart exposure**.

The imager acquires a series of short exposures and then renders a preview image and a recommended exposure time. This is not a real image.
2. To adjust or set a manual exposure time, select a method:
  - Touch + or – within dial.
  - Finger swipe in the segmented dial.
  - Touch the dial center box to select a preset exposure time.
  - Touch **Custom** to input a user-specified time.

The image preview will update in real-time.

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3. Touch **Capture** to acquire image with the indicated exposure time.  
Captured image appears on screen and automatically saves to the gallery.
4. If an acceptable image, touch **Export**, **Gallery** or **Analyze**. If an unacceptable image, touch **More options** ▶ **Image adjust** to optimize image or touch **Trash** to remove image, then return to step 2 to adjust exposure conditions.


## Image using Fluorescent Blots (FL1000 model only)

1. Touch **Choose a dye** to select one dye or multiple dyes from the list. See “Select a Dye” on page 3 for selection details.
2. Touch **Done**.
3. Touch **Smart Exposure**. Alternatively, for manual exposure, touch **More options** ▶ **Manual Exposure**.  
The imager will acquire a series of short exposures for each dye type selected. It will then render preview images and a recommended exposure time for each channel. These are not real images.
4. See step 2.  
The image preview will update in real-time.
5. Touch **Capture** to acquire image with the indicated exposure time.  
Captured image appears on screen and automatically saves to the gallery.
6. If an acceptable image, touch **Export**, **Gallery** or **Analyze**. If an unacceptable image, touch **More options** ▶ **Image adjust** to optimize image or touch **Trash** to remove image, then return to step 4 to adjust exposure conditions.

### Select a Dye

1. Touch a dye channel.
2. Touch a desired dye.
3. Touch **Done**.
4. Repeat for up to 4 dye channels.
5. Touch **Done**.

### Edit dye channel

1. Touch **Edit channels**.
2. Touch a dye button.
3. Select a new dye from the dye table.  
New dye shows within that button and is available as a channel for next image capture.
4. (Optional) Touch  to toggle on/off the dye overlay on the image.

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5. Touch **Back** to return to previous screen.
6. Touch **Done**.

## Image using Nucleic Acid Gel

1. Touch **Smart exposure**. Alternatively, to set a manual exposure time, touch the center of the dial.  
The imager acquires a series of short exposures and then renders a preview image and a recommended exposure time. This is not a real image.
2. See step 2.  
The image preview will update in real-time.
3. Touch **Capture** to acquire image with the indicated exposure time.  
Captured image appears on screen and automatically saves to the gallery.
4. If an acceptable image, touch **Export**, **Gallery** or **Analyze**. If an unacceptable image, touch **More options** ▶ **Image adjust** to optimize image or touch **Trash** to remove image, then return to step 2 to adjust exposure conditions.

## Image using Protein Gel

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**IMPORTANT!** For visual stained gels (e.g., Coomassie or silver-stained gels), place white screen under the sample.

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1. Touch **Smart exposure**. Alternatively, to set a manual exposure time, touch the center of the dial.  
The imager acquires a series of short exposures and then renders a preview image and a recommended exposure time. This is not a real image.
2. See step 2.  
The image preview will update in real-time.
3. Touch **Capture** to acquire image with the indicated exposure time.  
Captured image appears on screen and automatically saves to the gallery.
4. If an acceptable image, touch **Export**, **Gallery** or **Analyze**. If an unacceptable image, touch **More options** ▶ **Image adjust** to optimize image or touch **Trash** to remove image, then return to step 2 to adjust exposure conditions.

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## Options available in modes

Each mode offers More Options on certain workflow screens to provide detailed camera and image adjustment.

**Table 1** Camera

Suboption		Detail
Resolution/Sensitivity		Changes binning setting to increase resolution/decrease sensitivity or decrease resolution/increase sensitivity.
Zoom/Focus		Changes zoom level to increase or decrease image area. Optimizes focus for sharpness.
Sample rotation		Imager mechanically rotates sample $\pm 10^\circ$ depending on orientation. Rotation is automatic, but also allows ability to adjust in <b>More Options ▶ Camera Settings</b> .

**Table 2** Routines




Suboption		Detail
Routines	Multi-exposure	Series of 5 preset exposure times producing one image for each time period.

**Table 3** Image adjust

Suboption		Detail
Contrast		Grayscale differentiation between image features. Can use Auto contrast, Gamma, White slider bar, or Black slider bar.
Channels and Layers		Allow user to navigate between individual channels associated with a common image file; pertains only to Chemi and Fluorescent blot modes (e.g., Channels: membrane, Alexa Fluor™ 488, Alexa Fluor™ 555, Composite). Layers allow toggling on and off analysis tools.
False color		Substitutes a false color in place of an expected color.
Zoom		Increases or decreases digital zoom to select an area of the image.
Invert		Produces a negative or positive (white to black or black to white) of the displayed image.
Saturation		False-colors saturated white pixels (65,536) as red to differentiate from non-saturated pixels.

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**Table 4** Other options

Suboption	Detail
Region of Interest	Specify an area on the image to focus the Smart Exposure tool.
Manual exposure	Manually select an exposure time for sample.
Smart exposure	Predicts optimal exposure for minimizing pixel saturation and maximizing dynamic range for a specific sample. Renders a preview of how the image will appear at the recommended exposure time.
Band excision (Nucleic Acid Gels mode)	Opens drawer and turns on LED light to allow for band excision on nucleic acid gels.
Membrane overlay (Chemical and Fluorescent Blot modes)	Allows visible membrane overlay to see any visible prestained markers, which aid in identifying molecular weights for unknown samples.
2UP view (Fluorescent Blot mode)	<p>After a Smart Exposure or Capture, images are displayed by default in a 2UP view.</p> <ul style="list-style-type: none"> <li>• Top image displays individual channels in grayscale. Individual channels can be toggled on and off in the grayscale image by touching <b>Edit channels</b> and  on the left of the appropriate dye. After a dye is selected, that channel image is displayed in the top view and becomes editable so the user can increase or decrease the exposure time dial and see in real time the effect on the image preview or captured image for that specific channel.</li> <li>• Bottom image displays the color composite with channels displayed as different false colors overlaid on a black background. Individual channels can be toggled on and off in the composite image by touching <b>Edit channels</b> and  on the left of the appropriate dye.</li> </ul>
1UP view (Fluorescent Blot mode)	<p>After a Smart Exposure or Capture, images can also be displayed in a 1UP view.</p> <p>Image displays the grayscale and false-color composite images by toggling <b>Gray</b> or <b>Color</b>. Individual channels can be toggled on and off in the grayscale and false-color images by touching <b>Edit channels</b> and  on the left of the appropriate dye.</p> <p><b>Note:</b> Functionality for toggling between individual channels in grayscale view or toggling on and off individual channels in the false-color composite view is identical to the 2UP view.</p>



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## Use Gallery

On the "Welcome" screen or capture screen Mode drop-down menu:

1. Touch **Gallery** or .  
All stored images will show as thumbnail images in chronological order.
2. Toggle between **Thumbnail view** and **List view** to see stored images as thumbnails or a table listing.  
List view is sortable using the 4 column headers:
  - Name
  - Mode
  - Size
  - Acquisition date
3. To choose one or multiple images, touch each image wanted. Touch again to deselect images. To choose all stored images, touch **Select all**. Unselect using **Deselect all**.
4. To filter images, touch **Filter options**.
  - Touch **Keyword** to filter using a term.
  - Touch **Date range** to filter within a certain period (YYYY/MM/DD-YYYY/MM/DD).
  - Toggle on or off the 4 mode options to filter images based on mode.
5. Touch **Done**.

### Edit image information

1. Touch **Actions**.  
Selected images display across the bottom of the screen.
2. Touch  or  to scroll through images.
3. Touch image.
4. Touch **Image information** to view Name, File type, Mode, Date, and Comments.
5. Touch **Edit** to edit the **Name** or **Comments** fields.
6. Touch **Done**.

### Adjust selected image

1. Touch **Image adjust**.
2. Select a layer to adjust (e.g., Membrane, Alexa Fluor™ 488, etc.).
3. Adjust image as needed.
  - Touch **Contrast** to adjust black, white or gamma levels.
  - Touch **Zoom** to adjust image view.
  - Touch **Invert** to reverse black and white pixels in binary image.
  - Touch **Saturation** to view red false-coloring of saturated pixels.

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Once adjusted, the image can be exported, analyzed or deleted.

- To delete, touch **Trash**.
- To send to the Thermo Fisher Cloud or an external drive, touch **Export**. See “Export images” on page 8.
- To run further image analysis, touch **Analyze**. See “Analyze images” on page 8.
- If needed, touch **Clear images** to remove selected images held in the Actions tray.

## Analyze images

1. Touch **Analyze**.
  - Analysis frames, lanes, and bands are identified.
  - Multi-channel images display as selectable individual channels.
  - The system can identify 1-4 different analysis frames.
2. Touch **Sensitivity** to adjust band sensitivity.  
Swiping dial up or down between 0-100 raises or lowers the band-find threshold.
3. Touch **Edit analysis frame** to remove, add or edit any existing analysis frames.
4. Touch **Apply** to save changes.
5. Touch **Next** to display the analysis table.
6. To add, remove or edit lanes and/or bands, touch **More options ▶ Adjust lanes** or **More options ▶ Adjust bands**.
7. Touch **Apply** to save changes.
8. Touch **More options ▶ Marker** to identify a molecular weight lane for each analysis frame, and a known standard can be used to approximate the molecular weight of unknown bands.
9. Touch **More options ▶ Generate report** to produce a .pdf displaying the images and analysis table.  
The report file can be exported and/or printed.

## Export images

1. Touch **Export**.
2. Touch **Edit ▶ Name** to edit file name.
3. Touch **Edit ▶ Comments**.

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4. Touch **Destination** to choose a storage location.  
Each destination choice can be labeled and edited by user.
  - Cloud: Thermo Fisher Cloud account
  - USB: User-supplied USB drive
  - Network Drive: Local ethernet network
  - Printer: Print image file on a network printer
5. When exporting to a USB drive or a network drive, touch **File Type** to choose an image format.
  - Publication (TIFF, JPEG, PNG): Files exported for publication are converted to 24-bit RGB format for print or presentation.
  - Analysis (TIFF, g2i): Files exported for analysis are converted to 16-bit TIFF for analysis on appropriate software or as a proprietary g2i file format for analysis.

**Note:** g2i is a proprietary file type for transferring images to the Thermo Fisher Cloud.


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## Sign in to your account

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## Create an instrument profile and connect your instrument to the cloud

### Create an instrument profile

1. On the Welcome screen, select  to sign in to instrument user account.
2. Touch **Get Started**.
3. Enter a **Screen name**.
4. Enter and confirm a four-digit PIN.  
Touch the **Show PIN** checkbox to switch PIN display on or off.
5. Touch **Create profile**.
6. *(Optional)* If you want to link your instrument to your Thermo Fisher Cloud account, touch **Yes** when prompted. Otherwise, touch **No**.

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