KONICA MINOLTA DRYPRO SIGMA 2 Laser Imaging System

Film Types

The DRYPRO SIGMA 2 Laser Imager prints on KONICA MINOLTA Medical Imaging Film.

Intended Use

The DRYPRO SIGMA 2 Laser Imaging System is intended to provide high-resolution hard copy images from digital imaging source output signals onto KONICA MINOLTA MEDICAL IMAGING FILM SD-S series. The device is intended for use with a variety of digital modalities, including, but not limited to, CR (Computed Radiology), DR (Digital Radiology), CT (Computerized Tomography), MRI (Magnetic Resonance Imaging), and FFDM (Full Field Digital Mammography). Image resizing is used to preserve true geometric size images. The images are to be used for medical diagnosis and referral to physicians and their patients.

Getting Started

Your imager comes with several publications to help you get started quickly and safely. Locate the following publications:

- Safety Manual (AD3436): Review this manual first to understand how to position and work with the imager safely and within regulations.
- Pre-Installation Manual (AD3440): Use the checklist to ensure that your site is ready for the installation.
- Operation Manual (AD3435): Refer to this manual for a product overview, use instructions, and troubleshooting tips.
- Quick Reference Card (AD3439): Keep this card in a convenient place and reference it as needed.
- Quality Control Manual for Mammography (AD4004): Apply the quality control tests to the imager if you are printing mammography prints.

NOTE: Requirements for mammography quality control vary by region.

Film Types

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Publication History:

Rev A: First release.

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Rev A: First release.
Operation Manual
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Publication History
1 Overview

The Laser Imaging System is a continuous-tone laser imager with an internal photothermographic film processor. Heat, rather than photo chemicals, is used to develop the film. This easy-to-use and reliable imager provides high-quality prints. Use the prints from this system for:

- Diagnostic purposes to determine patient treatments, including imaging for full field digital mammography
- Referral, sharing, or educational purposes

The system receives and prints from qualified image sources such as medical electrical equipment (modalities) and workstations over the network. You can send print jobs simultaneously from multiple image sources. The open design lets you connect to modalities of all types and vendors.

1 **Top cover.** Covers the processor rollers. The top cover is interlocked.
2 **Display screen.** Provides an interface to the imager, with status and error information.
3 **Right cover.** Protects sensitive electronic equipment. The right cover is only accessed by service personnel.
4 **Film supply door.** Covers the upper and lower film supplies.
5 **Left cover.** Covers the left side of the imager. You might remove the left cover to clear an occasional film jam. The left cover is interlocked.
6  **Filter door.** Covers the replaceable filter.

7  **Exit tray.** Holds multiple sheets of processed film. Extend the exit tray to hold large film (35 x 43 cm/14 x 17 in. and 35 x 35 cm/14 x 14 in.) as it finishes printing.

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**Major Internal Assemblies**

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6  **Filter door.** Covers the replaceable filter.

7  **Exit tray.** Holds multiple sheets of processed film. Extend the exit tray to hold large film (35 x 43 cm/14 x 17 in. and 35 x 35 cm/14 x 14 in.) as it finishes printing.
How the Imager Works

The imager receives, processes, manages, and prints the images on film. The imager has limited storage to hold a small number of digital images. As images are received for printing, they are stored in memory, placed in a sequential print queue, and printed in order. The imager can continue to accept incoming print jobs even if temporarily unable to print (if the film supply is empty, etc.).

During normal operation, the imager requires very little attention. It prints automatically in response to print requests from the configured image sources. Information sent with the images by the image source, such as film type and size and image quality settings, is applied unless you set the imager to override information that comes from the image source.
Each time the imager receives a print request, the following print sequence occurs. The arrows show the film path.

1. Suction cups in the pickup area lift a single sheet of film out of one of the supply cartridges and feed the film into the transport rollers.
2. The transport rollers move the film down to the accumulator area.
3. The film reverses direction and moves up during imaging (as the optics module writes the image onto film). Then the film moves up to the processor.
4. As the film passes over the processor drum, the heat generated by the drum develops the film.
5. The exit rollers move the developed film to the exit tray.
Supported Film Sizes

The imager is available in different configurations; the following film sizes can be supported:

- 35 x 43 cm (14 x 17 in.)
- 28 x 35 cm (11 x 14 in.)
- 25 x 30 cm (10 x 12 in.)
- 20 x 25 cm (8 x 10 in.)

Blue and mammography film types may be available.

Mammography Imaging

To manage and support mammography imaging, the imager provides these features.

- You can load mammography film in one or both film supplies.
- The imager can be configured to print mammography images exclusively on mammography film. If a mammography image request is received, and:
  - a cartridge with mammography film is not loaded, and/or
  - the requested mammography film size is not loaded,
  then the imager will request the appropriate film size and type. You must load the requested size and type to print the mammography job.
- Several mammography-specific test prints are provided, including a test print for the routine calibration of mammography film (for example, a density wedge print). The default mammography test print is configured during installation and can be changed from the Web Portal.

Note

See the Mammography Quality Control Manual for more information. Requirements for mammography quality control vary by region.

Automatic Image Quality and Processing

An internal densitometer enables the imager to automatically adjust image processing parameters using Automatic Image Quality Control (AIQC) to produce an optimal image. The imager adjusts these parameters each time it prints a calibration film.

A calibration film is printed when:

- A film cartridge is inserted in the imager with film of a new lot number.
- You request a calibration film at the display screen or the Web Portal.
- A film cartridge is inserted into the imager for which a current calibration is not stored.
Related topics:

Calibrate the Imager for the Loaded Film

Configure and Monitor the System (Using the Web Portal)

The Web Portal is your interface to additional features. In addition to the installation and setup of your system, you can view and manage the imager's connections over the network, configure features, view error messages, and access general status information at the Web Portal. You can also check film count, film size, and film type.

Related topics:

Access the Web Portal

Installation, Setup, and Safety

Installation and setup must be performed by a qualified service provider. Contact a qualified service provider with any questions.

See the Safety Manual, available on the publications disc, for instructions to safely use the imager and for agency compliance.
User Manual Conventions

**Note**
Notes provide additional information, such as expanded explanations, hints, or reminders.

**Important**
Important notices highlight critical policy information that affects how you use this manual and this product.

**Caution**
Cautions point out procedures that you must follow precisely to avoid injury to yourself or others, damage to the system or any of its components, or loss of data or corruption of files in software applications.

**Laser Warning**
Laser warnings warn personnel that access to laser radiation is possible and all personnel must avoid direct exposure to the beam.
2 Basic Operating Tasks

During normal operation, the imager receives and automatically prints images sent by modalities over a network. Very little interaction is required. You can do the following:

- Turn the power on (I) and off (O).
- Load the film cartridges.
- Monitor the display screen for status and operating conditions.

Sometimes it will be necessary to perform preventive maintenance, filter replacement, and other corrective actions such as a restart.

You also may access the Web Portal to perform additional configuration, optimize image quality, or do troubleshooting tasks.

Related topics:

Maintenance and Troubleshooting
Access More Functionality with the Web Portal
The Display Screen

The display screen communicates the status of the imager.

Figure 1: Display screen: normal state, processing a print job from the upper supply. In this example, there are 86 sheets of film in the upper cartridge and 113 sheets in the lower cartridge.

<table>
<thead>
<tr>
<th>Symbol or code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper and lower left side</td>
<td>Film counts. Displays the number of films that are remaining in the upper and lower film cartridges. If a blue number does not display while the imager is powered on, the associated film cartridge is not inserted (or not fully inserted) into the imager.</td>
</tr>
<tr>
<td>Center right</td>
<td>Error or status code. The 3-digit code displays when the error or status condition is present. If the imager is on and a 3-digit code does not display, the imager is operating normally.</td>
</tr>
<tr>
<td>Indicator light</td>
<td>The light indicates the active cartridge. For example, when printing from the upper supply, the indicator light appears next to the upper film count.</td>
</tr>
</tbody>
</table>

- If a print job requires a different film size and/or type from the loaded films, the requested size and type displays along with the Film size symbol. For mammography film, an **M** displays in front of the film size, and **B** indicates the blue base film. Load the requested film size and type.
- When the imager is starting, a countdown displays the number of minutes until the imager will be ready to print (for example, -4 means 4 minutes until the imager will be ready to print).
- When green, operation is normal.
- When amber, the light indicates that there is an issue with the film supply, such as a jammed film.
### Symbol or code Description

#### Power
When the symbol is green, the power is on and the imager is ready to print.
- The symbol flashes while the imager is processing, calibrating, or making a test print.
- When the symbol is amber, the imager is not ready to print. Examples are when the imager has just been started, when a film cartridge is empty or jammed, and when a cover is removed.

#### Calibrate and Test Print
Calibration might be needed if the symbol is on and code 624, 631, or 632 appears. Press the symbol to calibrate the upper or lower film cartridge.
- The symbol flashes while the calibration is in process, when making a test print (upper or lower), and when you initiate a filter reset.
- When amber, there is an error such as a failed calibration. The indicator light associates the error code to the film cartridge. Depending on the issue, you may be able to keep printing (631 or 632 error), or it might be necessary to load a different film cartridge (624 error).

To make a test print, press and hold the Calibrate symbol for three seconds until the imager beeps twice. The test print varies depending on the type of film.

#### Important
To avoid exposing the film to light, do not open the film supply door until the Pause symbol is off. Wait until the symbol is off to replace a cartridge.
- During most normal operation, including when the imager is idle, the symbol is off.
- The symbol is on while the imager is processing images, test prints, and during calibration.
- The symbol flashes when a film cartridge cover is in the process of being opened (rolled back) or closed.

If the Pause symbol is on, you can press the symbol to temporarily pause printing. Any jobs in progress finish printing, then the film cartridge cover closes. When the Pause symbol turns off, you can open the film supply door.

#### Film Size
When this symbol appears, the requested print job requires a different film size and/or type. The required film size/type flashes in the location of the error or status code.
You can also press this symbol for three seconds, until the imager beeps twice, to cancel all pending print jobs that require an unavailable media size and/or type.

#### Restart
Restart the imager. An error code also displays to indicate the reason for the restart.
Basic Operating Tasks

<table>
<thead>
<tr>
<th>Symbol or code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film Jam</td>
<td>Film is jammed from the upper or lower cartridge. The error code confirms the film jam and gives direction on where to find the film inside the imager. The indicator light associates the error code with the film cartridge.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Preventive maintenance is required. An error code also displays to indicate the action to take.</td>
</tr>
</tbody>
</table>

Related topics:
- Maintenance and Troubleshooting
- Load a Different Film Size to Match a Print Request
- Calibrate the Imager for the Loaded Film
- Delete All Pending Jobs with Unavailable Media Size or Type
- Test Prints
- Restart the Imager
- Preventive Maintenance
Imager Power

Power Switch Location

The power switch (1) is on the lower portion of the imager’s back panel (2).
Start the Imager

1. Press the power switch on the back of the imager on.

2. Wait as the imager warms up.
   
   The warm-up period might last up to 30 minutes. The display screen shows the progress as the imager becomes ready to print.

**Figure 2:** The imager counts up to zero (0) to indicate how soon the imager will be ready to print. In this example, the imager will be ready to print in 7 minutes. The amber power symbol also indicates that the imager is not ready to print.

The warm-up period varies depending on the amount of time the imager has been off and the ambient temperature. During the warm-up period, the imager can receive and store images but cannot print films. When the imager reaches operating temperature, the display screen changes to show that the system is ready to print, and the imager prints any images that were received during the warm-up period.

**Figure 3:** The green power symbol indicates that the imager is ready to process job requests.
Emergency Shutdown or Power Loss

In the event of a power loss, or if an emergency requires an immediate shutdown of the imager, films in process will not be completed. However, when power is restored, the imager will restart. After warming up, the imager automatically reprints any films that were in process when the power was interrupted.

Restart the Imager

If the imager encounters an error that is usually corrected with a restart, the display screen shows the Restart symbol.

**Figure 4:** A restart is required, and the error code indicates the error condition.

![Error code display](image)

**Note**
Check the *Troubleshooting* chapter or the *Quick Reference Card* to identify the error code.

1. Press the power switch on the back of the imager off.

2. Press the power switch on.

If the error does not clear after the restart, it might be necessary to contact a qualified service provider.
About the Film Cartridges

Film Count
The upper and lower film counts appear on the display screen.

Figure 5: In this example, the upper cartridge has 86 sheets of film, and the lower has 113.

Size/Type of the Loaded Film
To check the size of the loaded film, open the film supply door and view the loaded cartridges.

Note
Make sure the Pause symbol is off before you open the film supply door.

Film Count Flashes “0”
When either cartridge is empty, the film count flashes “0.” Replace the cartridge.

Figure 6: In this example, the upper film cartridge is empty. Replace the upper cartridge.
**Film Size/Type Flashes**

When a film size/type is requested that is not loaded, the Film Size symbol (1) appears, and the requested film flashes (2). Change the loaded film to match the print request.

**Figure 7:** View and load the requested film size/type in the error code location (2). In this example, “M” represents a request for mammography film.

**Related topics:**
- Replace an Empty Film Cartridge
- Load a Different Film Size to Match a Print Request

**Replace an Empty Film Cartridge**

When a film cartridge is empty, the film count appears as 0 on the display screen.

**Note**
Before you load a new film cartridge, make sure that the Pause symbol is off. When the imager is idle, the symbol is off. When the film cartridge cover is open, the symbol is on. To avoid exposing the film to light, do not open the film supply door until the Pause symbol is off.

1. If the Pause symbol is on, press the symbol to close the film cartridge cover.
2. Open the film supply door (1).
3. Hold the edges of the film cartridge and lift the empty cartridge out of the film supply.
4. Discard the empty cartridge.
5. Insert the new film cartridge. Align the cartridge (2) with the label facing up and the perforations (3) leading into the imager. Set the leading edge (4) on the cartridge...
guides (5), and then slide the film cartridge into the imager to engage the detents (6) in the bottom of the cartridge.

6. Close the film supply door.
7. Check that the display screen changes to reflect the new film count. A new film cartridge contains 125 sheets.

**Load a Different Film Size to Match a Print Request**

If a print request requires a different film size, the requested film size flashes on the display screen. Change the installed film to match the print request.

- **M** = mammography film
- **B** = blue base film

**Figure 8:** The requested film size flashes, and the Film Size symbol indicates the need to load a different film size and/or type. In this example, mammography 10 x 12 in. film is requested. The amber text changes between “M10” and “M12.” Load it to continue with the print request.

1. If the Pause symbol is on, press it and wait until it turns off.
2. Open the film supply door (1).
3. Hold the edges of the film cartridge and lift the cartridge out of the film supply.
4. Insert the new film cartridge. Align the cartridge (2) with the label facing up and the perforations (3) leading into the imager. Set the leading edge (4) on the cartridge guides (5), and then slide the film cartridge into the imager to engage the detents (6) in the bottom of the cartridge.

5. Store the removed film cartridge.
6. Close the film supply door.
7. Check that the requested film size/type no longer displays on the screen.
Delete All Pending Jobs with Unavailable Media Size or Type

You might cancel all the pending print requests if the wrong media has been selected.

1. Press and hold the Film Size symbol for three seconds.

   ![Figure 9: The Film Size symbol indicates that there is at least one job that requires a different size or type of media.](image)

2. All print requests for an unavailable media size or type are deleted from the queue.

   ![Note](image)

   - A print request that cannot be printed is automatically deleted from the imager. This situation could be caused by invalid parameters from the modality, etc.
   - If a job is not printable, the imager will eject a blank film into the exit tray.
Calibrate the Imager for the Loaded Film

Automatic vs. Manual Calibration

The imager automatically calibrates film with a new media lot number.

The calibration initiates a test print with a step wedge pattern. The pattern has a series of 21 step wedges of increasing optical density.

Occasionally, it will be necessary to manually calibrate the imager for the film. Run a calibration manually when:

- A calibration error occurred, indicated by codes 624, 631, or 632 on the display screen. The imager will continue to print with a 631 or 632 error. A 624 error requires you to retry calibration and/or replace the film cartridge.
- A Not Calibrated message appears on the Web Portal Home screen.

Manual Calibration

1. Press the Calibrate symbol for the film cartridge (upper or lower).

Figure 10: In this example, the imager is running a calibration on the lower cartridge. The Calibration and Power symbols both flash while the calibration is in progress.

2. When the symbols stop flashing, the calibration is complete.

Note

If the Calibration symbol turns from blue to amber, there was a problem with the calibration process. An error code will display, and the indicator light associates the error code to the film cartridge. When a calibration error occurs, it might be necessary to address the error before you can continue printing to that film cartridge.

Related topics:

Error Indicators on the Display Screen
Test Prints

You can initiate a test print to verify operation. The type of test print varies depending on whether you have blue or mammography film loaded.

There are several options for mammography calibration prints; the default is configured during installation. If you need a different type of test print for mammography film, you can change the default at the Web Portal.

Make a SMPTE Image Print

The SMPTE test pattern is available when blue (non-mammography) film is loaded.

1. Press and hold the Calibrate symbol for the film cartridge (upper or lower) for three seconds.

   Figure 11: In this example, the imager is printing a SMPTE test image from the upper cartridge. The Calibration and Power symbols both flash while the test print is in progress.

2. When the symbols stop flashing, the SMPTE test print is complete.

Make a Mammography Test Print—Mammography Film Loaded

About Mammography Quality Control

There are several options for mammography calibration prints, for example, QC wedges, multipurpose QC, TG18-PQC or QC, TG18-UN10 or 80, or TG18-UNL10 or 80. The default is configured during installation, and you can change it any time from the Web Portal.

The QC step wedge test print provides density feedback at the conclusion of the test print cycle, letting you track and record density variations on mammography film. Four nominal output densities have been selected for control charting purposes:

- Step 1—Low density, not less than 0.45
- Step 2—High density, approximately 2.20
- Step 3—Minimum density (DMin) (Base + Fog)
- Step 4—Mid density, not less than 1.20
The density values for the last test print are recorded in the Web Portal, and you can manually record them on the film for charting purposes.

See the *Mammography Quality Control Manual* for more information.

**QC Step Wedge Test Print**

1. Press and hold the Calibrate symbol for the film cartridge (upper or lower, where the mammography film is loaded) for **three seconds**.

2. The film prints with the four density steps. The display panel shows the Step 1 values.

3. Press the Calibrate symbol again to view the results of Step 2. Repeat for Steps 3–4.

**Figure 12:** In this example, the imager has printed a QC step wedge test print. The Step number identifier displays at the upper left (1–4), and the density value displays on the right side (1.40 in this example). Record the values, if desired, on the film.

4. Press the Pause symbol to return to normal operation.
Open or Remove a Cover

You can open or remove the imager’s top cover, left cover, film supply door, and filter cover. The covers are protected with an interlock mechanism to keep the imager from printing when they are open. The imager is not operational when an interlock is open.

Code 701 alerts you that a cover and an interlock are open, and internal power has been removed from the operator accessible areas.

Figure 13: The 701 error indicates that a cover is open.

You might need to remove the:

- Film supply door, top cover, or left cover to search for film jams
- Filter cover to replace the filter

Related topics:

- Recognize and Handle a Film Jam
- Replace the Filter
Access More Functionality with the Web Portal

The Web Portal is your interface to additional features. In addition to the installation and setup of your system, you can view and manage the imager’s connections over the network, configure features, view error messages, and access general status information at the Web Portal. You can also check film count, film size, and film type.

Troubleshooting tools include:
- Optimization of image quality for modalities.
- Diagnostic utilities, including backup and restore.

The Web Portal provides an online Help system and a user’s guide to assist you.

Access the Web Portal

Prerequisites:
A personal computer (desktop or laptop) connected to the network

1. On a desktop or laptop computer, start WINDOWS INTERNET EXPLORER (IE).

Note
Only IE 6, 7, and 8 have been qualified with the imager. See the note below if using IE 8 or 9.

2. In the address field, type http://<imager’s IP address>

Note
If you do not know the IP address, check with your network administrator or the person who installed the imager.

3. Click Go.

The Web Portal opens to the Device Status (Home) screen.
- The main window shows general status, the number of print jobs queued, the number of jobs waiting for film, and the film count for each cartridge.
- The center panel displays the screens where you view and perform tasks. Online Help is available by selecting Documentation from the left panel, and the Help icon provides context-sensitive Help for fields and pages.
- The left panel also provides the links to all other screens.

Note
If you are using WINDOWS INTERNET EXPLORER 8 or 9, place the INTERNET EXPLORER (IE) window into compatibility view. After you have opened the IE window, click the Compatibility View toolbar button. This will correct some potential viewing issues. If the icon is not on the toolbar, select Compatibility View from the Tools menu.
3 Maintenance and Troubleshooting

Use the information in this chapter to keep the imager in the best condition and to correct minor problems.

- **Overview: Status and Error Messages and Codes**—Review this overview for information about where and when the messages and codes appear.
- **Preventive Maintenance**—Learn how to respond to the Maintenance symbol.
- **Error Indicators on the Display Screen**—Learn about the amber and red error symbols.
- **Using the Web Portal to Gain More Information on Errors**—Learn how and why to access the Web Portal.
- **Subsystem Error Codes and Messages**—Refer to this section for error codes and messages.
- **Condition Codes**—Refer to this section for all condition codes.
- **Film Jam Indication, Areas, and Interlocks**—See instructions to locate and correct jammed films.
- **Display Screen is Not Functional**—Learn what to do if the display screen is not responding.
- **Call for Support**—Learn how to get help.
Overview: Status and Error Messages and Codes

The imager detects errors and other conditions and reports them to you in multiple ways. Some conditions require your action. This section provides a list of the codes, explains the condition, and provides recommended actions when appropriate. View the codes:

- **At the imager’s display screen**, on the center right. The display screen reports 3-digit codes. Some codes are associated with symbols on the display screen, such as the Film Jam symbol, to help you quickly understand the condition.

- **At the Web Portal**. Access the Web Portal using your personal computer, keyboard, and mouse to gain more information about the errors and conditions. Using the Web Portal is optional, but you may find it useful. The Web Portal can report more information than the imager’s display screen due to the limited size of the display screen.

Related topics:

*Using the Web Portal to Gain More Information on Errors*
Preventive Maintenance

Note
These conditions are also reported at the Web Portal.

About the Filter

Caution
In the U.S., exhausted filters are considered to be non-hazardous waste according to the US Environmental Protection Agency Resource Conservation Recovery Act (RCRA). Municipality owned and licensed solid waste management facilities are an appropriate disposal option. Contact your local or state solid waste authorities to determine if additional disposal requirements apply. In other regions, contact local or regional solid waste authorities for proper disposal guidance.

The filter traps potential odors that are generated in the imager during film processing. The filter must be replaced after 7500 prints. Keep at least one new filter available to replace the used filter when needed.
Replace the Filter

When the filter must be replaced, the display screen shows the 449 error code and the Maintenance symbol.

1. Open the film supply door (1).
2. Remove the filter cover (2) by pulling out from the bottom of the cover.
3. Remove the filter by lifting it up and pulling it forward.

4. Install a new filter.

5. Re-install the filter cover.

6. To reset the imager for the new filter and to clear the Maintenance symbol, press and then release the illuminated Maintenance and Calibrate symbols at the same time.

550 Code and Maintenance Symbol

If the imager needs a preventive maintenance service call, the 550 code and Maintenance symbol appear:

When the 550 code displays, contact a qualified service provider.
Error Indicators on the Display Screen

The imager can detect errors and other conditions that require a response. Some errors or abnormal conditions are reported on the display screen in the form of condition codes and symbols.

Note
These errors are also reported at the Web Portal.

 Recognize and Handle a Calibration Error

When the calibration has failed, the display screen shows a 624, 631, or 632 error and the Calibrate symbol is amber.

Figure 14: In this example, the amber indicator light and Calibration symbol indicate that calibration of the film in the lower cartridge has failed.

![Image of display screen showing error codes](image)

The most common cause is a film-related problem. Depending on the cause, you may be able to keep printing, but the imager may not be optimally calibrated for this film lot.

Attempt a manual calibration. If the calibration fails again, load a new film cartridge.

Related topics:
Calibrate the Imager for the Loaded Film
Handle a Required Restart

When the Restart symbol appears, you must restart the imager.

**Figure 15:** The amber Power symbol, together with the Restart symbol, indicates that you must restart the imager to continue printing.

1. Press the power switch on the back of the imager off.

2. Press the power switch on.

If the error does not clear after the restart, it might be necessary to contact a qualified service provider.

**Related topics:**

Restart the Imager
Recognize and Handle a Film Jam

When the Film Jam symbol appears, you must clear the jam before the imager can continue to print. After the jam has been cleared, the imager will reprint the image on a new sheet of film.

**Figure 16:** In this example, the red jam symbol alerts you to the jam, and the amber indicator light shows you that the jam is related to the upper film cartridge. The error code also indicates a film jam.

**Related topics:**
Film Jam Indication, Areas, and Interlocks
Using the Web Portal to Gain More Information on Errors

The Web Portal is your interface to additional functions on the imager. You can view and correct error messages and access general status information at the Web Portal.

About Codes on the Web Portal and the Display Screen

The 3-digit error and status codes on the display screen are reported at the Web Portal as 5-digit codes. The last three digits on the Web Portal codes match the three digits on the display screen. For example, code 701 on the display screen is the same as code 20701 on the Web Portal. Use the information in this section to understand the information at the display screen and/or at the Web Portal and to respond appropriately.

Related topics:

Access the Web Portal
Subsystem Error Codes and Messages

Use the information in this section to interpret the codes and messages that appear on the display screen and at the Web Portal.

DICOM (Digital Imaging and Communications in Medicine)

In response to a DICOM printer N-GET status request from a modality, a printer status message and a printer status info message are returned to the requesting service class user (SCU). Every error has an associated printer status info message. If more than one error exists when a printer N-GET request is received, a status message is sent in response, according to an established priority. The table shows the DICOM printer status and info message.

<table>
<thead>
<tr>
<th>Printer Status</th>
<th>Printer Status Info</th>
<th>Printer Status</th>
<th>Printer Status Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAILURE</td>
<td>ELEC DOWN</td>
<td>WARNING</td>
<td>BAD SUPPLY MGZ</td>
</tr>
<tr>
<td></td>
<td>PRINTER DOWN</td>
<td></td>
<td>CALIBRATION ERR</td>
</tr>
<tr>
<td></td>
<td>PROC DOWN</td>
<td></td>
<td>CHECK PRINTER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COVER OPEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EMPTY MEDIASZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MEDIATP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FILM JAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FILM TRANS ERR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PROC INIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PRINTER INIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PRINTER OFFLINE</td>
</tr>
</tbody>
</table>
## Machine Control System (MCS) Imager Status Messages

The table describes how the display screen and Web Portal indicate imager status:

<table>
<thead>
<tr>
<th>Printer Status</th>
<th>Display Screen</th>
<th>Web Portal (remote) Display</th>
<th>DICOM Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Mode</td>
<td><img src="image1" alt="Service Mode Display" /></td>
<td>Service Mode</td>
<td>WARNING / PRINTER OFFLINE</td>
<td>The service override switch is enabled. The imager is not ready.</td>
</tr>
<tr>
<td>Offline</td>
<td><img src="image2" alt="Offline Display" /></td>
<td>Printing Disabled</td>
<td>WARNING / PRINTER OFFLINE</td>
<td>Printing/delivery has been disabled.</td>
</tr>
<tr>
<td>Failed</td>
<td>(Code will vary)</td>
<td>Failed</td>
<td>See error tables</td>
<td>An error occurred that prevents printing.</td>
</tr>
<tr>
<td>Self-test</td>
<td><img src="image3" alt="Self-test Display" /></td>
<td>Self-test</td>
<td>WARNING / PRINTER INIT</td>
<td>This occurs when power is first applied to the MCS.</td>
</tr>
<tr>
<td>Warming</td>
<td><img src="image4" alt="Warming Display" /></td>
<td>Warming=xx</td>
<td>WARNING / PROC INIT</td>
<td>The processor is currently warming up and will not be ready to print for xx minutes.</td>
</tr>
<tr>
<td>Cover is Open</td>
<td><img src="image5" alt="Cover is Open Display" /></td>
<td>Cover Open</td>
<td>WARNING / COVER OPEN</td>
<td>A imager cover is open. imager not ready. (A side cover could be off.)</td>
</tr>
</tbody>
</table>
## Maintenance and Troubleshooting

<table>
<thead>
<tr>
<th>Printer Status</th>
<th>Display Screen</th>
<th>Web Portal (remote) Display</th>
<th>DICOM Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing</td>
<td>![Display Image]</td>
<td>Printing</td>
<td>NORMAL</td>
<td>The imager is printing.</td>
</tr>
<tr>
<td>Ready</td>
<td>![Display Image]</td>
<td>Ready</td>
<td>NORMAL</td>
<td>The imager is online and the processor has reached operating temperature.</td>
</tr>
<tr>
<td>Pauser (cartridge close requested)</td>
<td>![Display Image]</td>
<td>Not Ready</td>
<td>WARNING / COVER OPEN</td>
<td>The imager is completing prints in progress.</td>
</tr>
</tbody>
</table>

### Film Supply Status Messages

The table describes how the display screen and Web Portal indicate film supply status:

<table>
<thead>
<tr>
<th>Film Supply State</th>
<th>Display Screen</th>
<th>Web Portal Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed</td>
<td>![Display Image]</td>
<td>Failed</td>
<td>An error occurred that affects normal operation. The film cartridge is currently not usable. Reinsert the cartridge. If the error recurs, insert a new film cartridge.</td>
</tr>
<tr>
<td>Calibrating</td>
<td>![Display Image]</td>
<td>Calibrating</td>
<td>A calibration is in progress for this film cartridge.</td>
</tr>
<tr>
<td>Film Supply State</td>
<td>Display Screen</td>
<td>Web Portal Display</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------</td>
<td>--------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Film cartridge empty</td>
<td><img src="image1" alt="Image" /></td>
<td>Empty and/or sheet count of 0</td>
<td>The film cartridge is inserted but the sheet count is 0. Insert a new film cartridge.</td>
</tr>
<tr>
<td>Manual Mode</td>
<td><img src="image2" alt="Image" /></td>
<td>AIQC Off (with normal tray information)</td>
<td>The film in this cartridge does not meet Automatic Image Quality Control (AIQC) standards. However, the imager prints if ready.</td>
</tr>
<tr>
<td>Invalid film cartridge</td>
<td></td>
<td>Invalid Film Tray</td>
<td>There is a film cartridge in the film supply, but it does not contain a liner/RF tag. Install a new film cartridge.</td>
</tr>
<tr>
<td>Ready</td>
<td><img src="image3" alt="Image" /></td>
<td>Normal Tray Info</td>
<td>The film cartridge is ready to use.</td>
</tr>
<tr>
<td>Requires Calibration</td>
<td></td>
<td>Requires Calibration</td>
<td>The film cartridge must be calibrated before the imager can print. Initiation of the calibration may require user action.</td>
</tr>
<tr>
<td>Film cartridge not detected</td>
<td></td>
<td>No Film Tray</td>
<td>The film cartridge is not fully inserted into the imager. Insert the cartridge.</td>
</tr>
</tbody>
</table>
Maintenance and Troubleshooting

<table>
<thead>
<tr>
<th>Film Supply State</th>
<th>Display Screen</th>
<th>Web Portal Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Ready</td>
<td>Varies</td>
<td>Not Ready</td>
<td>When the conditions are corrected, the imager can print.</td>
</tr>
<tr>
<td>Cartridge closure pending</td>
<td><img src="image.png" alt="Image" /></td>
<td>Pause Requested</td>
<td>You pressed the Pause button, but the film cartridge has not started to close because films are still moving through the imager. When the cartridge finishes closing, the Pause symbol turns off and you can remove the film cartridge.</td>
</tr>
</tbody>
</table>

**Related topics:**
Calibrate the Imager for the Loaded Film

**Job Manager Status Messages**

The table describes how the display screen and Web Portal indicate job status:

<table>
<thead>
<tr>
<th>Job Manager Status</th>
<th>Display Screen</th>
<th>Web Portal Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Not applicable</td>
<td></td>
<td>The imager is accepting DICOM job requests and film is available for all current jobs.</td>
</tr>
<tr>
<td>No Media</td>
<td><img src="image.png" alt="Image" /></td>
<td></td>
<td>The imager is accepting DICOM job requests, but film of the correct size and type is not available for at least one current job.</td>
</tr>
<tr>
<td>Offline</td>
<td><img src="image.png" alt="Image" /></td>
<td>DICOM Offline</td>
<td>The laser imager cannot accept any DICOM job requests. Restart the imager.</td>
</tr>
</tbody>
</table>
Related topics:

- Load a Different Film Size to Match a Print Request
- Restart the Imager

Condition Codes

Condition codes are shown on the display screen in the order in which they are generated. If there is more than one code associated with the current condition of the imager, the first code is shown on the display screen for six seconds, while other codes in the list display for three seconds as the list is cycled. You can also view these codes and messages at the Web Portal.

<table>
<thead>
<tr>
<th>Display Screen</th>
<th>Web Portal</th>
<th>Web Portal Message</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>004</td>
<td>01004</td>
<td>MIM Core: Internal Software Error</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>005</td>
<td>20-005</td>
<td>Internal MCS Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>200</td>
<td>04200</td>
<td>MIM Core: Disk Full</td>
<td>Load the requested film type and size for jobs that are waiting for media. If the error persists, call for service.</td>
</tr>
<tr>
<td>400</td>
<td>06400</td>
<td>MIM Core: Image Page Error</td>
<td>Resend the print job from the image source. If the error persists, call for service.</td>
</tr>
<tr>
<td>410</td>
<td>06410</td>
<td>MIM Core: Image Rendering Error</td>
<td>Resend the print job from the image source. If the error persists, call for service.</td>
</tr>
<tr>
<td>411</td>
<td>06411</td>
<td>MIM Core: Image Data Error</td>
<td>Resend the print job from the image source. If the error persists, call for service.</td>
</tr>
<tr>
<td>420</td>
<td>06420</td>
<td>MIM Core: Internal Software Error</td>
<td>Resend the print job from the image source. If the error persists, call for service.</td>
</tr>
<tr>
<td>430</td>
<td>06430</td>
<td>MIM Core: Internal Software Error</td>
<td>Resend the print job from the image source. If the error persists, call for service.</td>
</tr>
<tr>
<td>001</td>
<td>10001</td>
<td>MIS: Internal Software Error</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>003</td>
<td>10003</td>
<td>MIS: Image Buffer Error</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>015</td>
<td>10015</td>
<td>MIS: Database Error</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>Display Screen</td>
<td>Web Portal</td>
<td>Web Portal Message</td>
<td>Action</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>---------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>910</td>
<td>10910</td>
<td>MIS: MCS Communication Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>006</td>
<td>20006</td>
<td>Disconnected or faulty network cable</td>
<td>Check and reconnect the network cable on both ends. Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>154</td>
<td>20154</td>
<td>MCS: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>155</td>
<td>20155</td>
<td>Incompatible MCS Printer Configuration for Hardware</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>156</td>
<td>20156</td>
<td>Incompatible Software Versions Installed</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>209</td>
<td>20209</td>
<td>Laser Imager Opened During Self Test</td>
<td>Replace/close the cover. Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>449</td>
<td>20449</td>
<td>None</td>
<td>Change the deodorant filter.</td>
</tr>
<tr>
<td>550</td>
<td>20550</td>
<td>None</td>
<td>Call service for preventive maintenance.</td>
</tr>
<tr>
<td>700</td>
<td>20700</td>
<td>None</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>701</td>
<td>20701</td>
<td>None</td>
<td>Replace/close the cover.</td>
</tr>
<tr>
<td>704</td>
<td>20704</td>
<td>None</td>
<td>The network connection to the imager has been lost. Restart the imager.</td>
</tr>
<tr>
<td>705</td>
<td>20705</td>
<td>None</td>
<td>The imager is restarting (for example, during a software update). Wait until the restart is complete.</td>
</tr>
<tr>
<td>706</td>
<td>20706</td>
<td>None</td>
<td>A shutdown that was initiated remotely is complete. Restart the imager.</td>
</tr>
<tr>
<td>915</td>
<td>20915</td>
<td>Internal Image Data Transfer Failed</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>919</td>
<td>20919</td>
<td>Internal Image Data Render Failed</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>Display Screen</td>
<td>Web Portal</td>
<td>Web Portal Message</td>
<td>Action</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>--------------------</td>
<td>--------</td>
</tr>
<tr>
<td>002</td>
<td>21002</td>
<td>None</td>
<td>No action. The error may remain until the film cartridge is empty. The film cartridge is operating in manual mode and AIQC is off.</td>
</tr>
<tr>
<td>116</td>
<td>21116</td>
<td>Film Jam in Area 1U</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>116</td>
<td>23116</td>
<td>Film Jam in Area 1L</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>118</td>
<td>21118 or 23118</td>
<td>Film Supply: Internal Hardware Failure</td>
<td>If the Pause symbol is on, press it to cover the film cartridge. When the Pause symbol stops flashing, remove the film cartridge from the imager. Then reinsert the film cartridge into the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>119</td>
<td>21119 or 23119</td>
<td>Film Supply: Internal Hardware Failure</td>
<td>If the Pause symbol is on, press it to cover the film cartridge. When the Pause symbol stops flashing, remove the film cartridge from the imager. Then reinsert the film cartridge into the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>125</td>
<td>21125 or 23125</td>
<td>Film Supply: Internal Hardware Failure</td>
<td>If the Pause symbol is on, press it to cover the film cartridge. When the Pause symbol stops flashing, remove the film cartridge from the imager. Then reinsert the film cartridge into the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>139</td>
<td>21139 or 23139</td>
<td>Film Supply: Unable to Identify Film Cartridge</td>
<td>If the Pause symbol is on, press it to cover the film cartridge. When the Pause symbol stops flashing, remove the film cartridge from the imager. Then reinsert the film cartridge into the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>145</td>
<td>21145 or 23145</td>
<td>Film Supply: Unsupported Film Type</td>
<td>The imager does not support the loaded film type. Install a cartridge with a supported film type. If the error persists, call for service.</td>
</tr>
<tr>
<td>146</td>
<td>21146 or 23146</td>
<td>Film Supply: Unsupported Film Size</td>
<td>The imager does not support the loaded film size. Install a cartridge with a supported size. If the error persists, call for service.</td>
</tr>
</tbody>
</table>
## Maintenance and Troubleshooting

<table>
<thead>
<tr>
<th>Display Screen</th>
<th>Web Portal</th>
<th>Web Portal Message</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>175</td>
<td>21175 or 23175</td>
<td>Rollback Failed to Engage Cartridge</td>
<td>If the Pause symbol is on, press it to cover the film cartridge. When the Pause symbol stops flashing, remove the film cartridge from the imager. Then reinsert the film cartridge into the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>177</td>
<td>21177</td>
<td>Rollback Home Sensor (S2U) Failed to Activate in Specified Time</td>
<td>Open the film supply door, top cover, and left cover. Manually close the upper film cartridge, using the manual rollback knob, to prevent the film from fogging. Reinstall/close the covers. If the error persists, call for service.</td>
</tr>
<tr>
<td>177</td>
<td>23177</td>
<td>Rollback Home Sensor (S2L) Failed to Activate in Specified Time</td>
<td>Open the film supply door, top cover, and left cover. Manually close the lower film cartridge, using the manual rollback knob, to prevent the film from fogging. Reinstall/close the covers. If the error persists, call for service.</td>
</tr>
<tr>
<td>178</td>
<td>21178 or 23178</td>
<td>Film Cartridge Failed to Open</td>
<td>If the Pause symbol is on, press it to cover the film cartridge. When the Pause symbol stops flashing, remove the film cartridge from the imager. Then reinsert the film cartridge into the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>624</td>
<td>21624 or 23624</td>
<td>Film Supply: Film Calibration Failure</td>
<td>Calibrate again. If the error persists, insert a different film cartridge. If the error still displays, restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>631</td>
<td>21631 or 23631</td>
<td>Film Supply: Film Calibration Failure - Dmin Outside Target</td>
<td>The minimum density of the film is too high. Calibration results for this film are outside the normal range. Printing will continue with these parameters. If the prints are not optimal, do the calibration procedure again or insert another film cartridge.</td>
</tr>
<tr>
<td>632</td>
<td>21632 or 23632</td>
<td>Film Supply: Film Calibration Failure - Dmax Outside Target</td>
<td>The maximum density of the film is lower than the target density. Calibration results for this film are outside the normal range. Printing will continue with these parameters. If the prints are not optimal, do the calibration procedure again or insert another film cartridge.</td>
</tr>
<tr>
<td>Display Screen</td>
<td>Web Portal</td>
<td>Web Portal Message</td>
<td>Action</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>-------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>931</td>
<td>21931</td>
<td>Upper Film Supply: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>931</td>
<td>23931</td>
<td>Lower Film Supply: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>931</td>
<td>25931</td>
<td>RFTag: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>302</td>
<td>26302</td>
<td>Film Jam in Area 2</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>325</td>
<td>26325</td>
<td>Film Jam in Area 2</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>326</td>
<td>26326</td>
<td>Film Jam in Area 2 or 3</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>543</td>
<td>26543</td>
<td>Film Jam in Area 3</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>544</td>
<td>26544</td>
<td>Film Jam in Area 3</td>
<td>Clear the jam. See the procedure later in this section.</td>
</tr>
<tr>
<td>123</td>
<td>27123</td>
<td>Optics: Internal Hardware Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>931</td>
<td>26931</td>
<td>RFTag: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>601</td>
<td>27601</td>
<td>Optics: Calibration Failed</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>604</td>
<td>27604</td>
<td>Optics: Calibration Failed</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>607</td>
<td>27607</td>
<td>Optics: Calibration Failed</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>611</td>
<td>27611</td>
<td>Optics: Internal Hardware Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>646</td>
<td>27646</td>
<td>Optics: Internal Hardware Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>650</td>
<td>27650</td>
<td>Optics: Internal Hardware Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>Display Screen</td>
<td>Web Portal</td>
<td>Web Portal Message</td>
<td>Action</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>931</td>
<td>27931</td>
<td>Optics: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>501</td>
<td>28501</td>
<td>Processor: Internal Hardware Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>509</td>
<td>28509</td>
<td>Processor Warm-up Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>510</td>
<td>28510</td>
<td>Processor: Internal Hardware Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>551</td>
<td>28551</td>
<td>Processor Heater Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>554</td>
<td>28554</td>
<td>Processor Over Temperature</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>931</td>
<td>28931</td>
<td>Processor: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>924</td>
<td>29924</td>
<td>Densitometer: Internal Diagnostic Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>925</td>
<td>29925</td>
<td>Densitometer: Internal Diagnostic Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>931</td>
<td>29391</td>
<td>Densitometer: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>931</td>
<td>36931</td>
<td>Local Panel: Internal Communications Failure</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
<tr>
<td>935</td>
<td>36935</td>
<td>Local Panel: No Communications from MCS</td>
<td>Restart the imager. If the error persists, call for service.</td>
</tr>
</tbody>
</table>

**Related topics:**

- Restart the Imager
- Load a Different Film Size to Match a Print Request
- Replace the Filter
- 550 Code and Maintenance Symbol
- Calibrate the Imager for the Loaded Film
- Clear Film Jam in Area 1 – Error Code 116 (Web Portal code 21116/23116)
- Clear Film Jam in Area 2 – Error Code 302 (Web Portal code 26302)
Clear Film Jam in Area 2 – Error Code 325 (Web Portal code 26325)
Clear a Film Jam in Area 2 or 3 – Error Code 326 (Web Portal code 26326)
Film Jam in Area 3 – Error Code 543 or 544 (Web Portal code 26543 or 26544)
Film Jam Indication, Areas, and Interlocks

**Jam Indications**

When film is jammed, the display screen indicates a jam and an error code that provides guidance on where to check for the jammed film.

**Figure 17:** In this example, the indicator light shows you that the jam is related to the upper cartridge.

![Indicator Light]

**Note**

These errors are also reported at the Web Portal.
**Jam Areas**

The jam areas are referenced in the instructions to solve the jam.

<table>
<thead>
<tr>
<th>Jam Areas</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Upper supply</td>
</tr>
<tr>
<td>2</td>
<td>Lower film supply</td>
</tr>
<tr>
<td>3</td>
<td>Film path</td>
</tr>
<tr>
<td>4</td>
<td>Processor / densitometer</td>
</tr>
</tbody>
</table>
Interlocks

<table>
<thead>
<tr>
<th>Interlocks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Left cover</td>
</tr>
<tr>
<td>2</td>
<td>Film supply</td>
</tr>
<tr>
<td>3</td>
<td>Top cover</td>
</tr>
<tr>
<td>4</td>
<td>Filter cover</td>
</tr>
</tbody>
</table>
Roller Knobs

For some jams, you can remove the film by turning a knob to move the film out of the imager. If film becomes misplaced around the film cartridge, it might be necessary to manually cover the cartridge. See details in the film jam instructions.

Figure 18: Imager left side—Knobs for manual film removal and film cartridge closure

<table>
<thead>
<tr>
<th>Knobs</th>
<th>Description</th>
<th>Knobs</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Exit roller</td>
<td>4</td>
<td>Rollback knob—upper cartridge</td>
</tr>
<tr>
<td>2</td>
<td>Processor drum</td>
<td>5</td>
<td>Vertical transport</td>
</tr>
<tr>
<td>3</td>
<td>Exposure transport</td>
<td>6</td>
<td>Rollback knob—lower cartridge</td>
</tr>
</tbody>
</table>
Clear Film Jam in Area 1 – Error Code 116 (Web Portal code 21116/23116)

1. If the Pause symbol is on, press it and wait until it goes off.
2. Open the film supply door and remove the film cartridge from the imager.
3. Look in Area 1 (the upper or lower film supply) and Area 2 (Film Path) and remove any film. Access this area from the front of the imager through the film supply.
4. If you have not found the jammed film, remove the left cover:
   a. Remove the top cover.
   b. Turn the knurled knobs (1, 2) by hand.
6. If you have not found the jammed film, take the film cartridge to a dark room and carefully pull back the cartridge cover. Remove any misplaced films and then replace the cover.
7. Reinsert the film cartridge in the imager.
8. Reinstall/close the covers.
Clear Film Jam in Area 2 – Error Code 302 (Web Portal code 26302)

1. If the Pause symbol is on, press it and wait until it goes off.
2. Remove the left cover:
   a. Open the film supply door.
   b. Remove the top cover.
   c. Turn the knurled knobs (1, 2) by hand.
3. Look for and remove any jammed film:
   a. Remove the film cartridge, and check for any misplaced film in the imager.
   b. Remove any loose film near, in, or partially in the cartridge.
   c. If the film is not loose, carefully turn the exposure transport knob (1) and the vertical transport knob (2) clockwise to remove the film from the rollers:
   d. Reinsert the film cartridge in the imager.

4. Reinstall/close the covers.
Clear Film Jam in Area 2 – Error Code 325 (Web Portal code 26325)

1. If the Pause symbol is on, press it and wait until it goes off.
2. Remove the left cover:
   a. Open the film supply door.
   b. Remove the top cover.
   c. Turn the knurled knobs (1, 2) by hand.
3. Reach into Area 2 and remove any film.
4. If the film is not loose, carefully turn the exposure transport knob (1) and the vertical transport knob (2) clockwise to remove the film from the rollers.

5. Reinstall/close the covers.
Clear a Film Jam in Area 2 or 3 – Error Code 326 (Web Portal code 26326)

1. If the Pause symbol is on, press it and wait until it goes off.
2. Remove the left cover:
   a. Open the film supply door.
   b. Remove the top cover.
   c. Turn the knurled knobs (1, 2) by hand.
3. Rotate the processor drum (1) and exit roller (2) knobs clockwise until a film exits the imager.

4. If a film does not exit:
   a. Reach into Area 2 and remove any film.
   b. If the film is not loose, carefully turn the exposure transport knob (1) and the vertical transport knob (2) clockwise to remove the film from the rollers.

5. Reinstall/close the covers.
Film Jam in Area 3 – Error Code 543 or 544 (Web Portal code 26543 or 26544)

1. If the Pause symbol is on, press it and wait until it goes off.
2. Remove any film that is jammed in the exit tray.
3. Remove the top cover and remove any films.
4. If you have not found any jammed film, remove the left cover:
   a. Open the film supply door.
   b. Turn the knurled knobs (1, 2) by hand.
5. Rotate the exit roller knob (1) clockwise until a film exits the imager.

6. Pivot the heat shield (1) open and check for jammed film in the processor drum (2) area.
7. If necessary, carefully rotate the processor drum knob (1) clockwise and remove any film.

8. Reinstall/close the covers.
Display Screen is Not Functional

If the display screen is not responding, use the power switch on the imager to turn power off, and then on. If the display screen is still non-responsive, turn the imager off and contact a qualified service provider.

Call for Support

If you cannot correct a condition and need help, call for support. Have the following information ready when you call:

- Model number
- Error code from the display screen and/or code and error message from the Web Portal
4 Film Technical Information

This section describes the characteristics of Laser Imaging Film, not the operation of the imager. The Laser Imaging Film is a high-resolution, infrared-sensitive, photothermographic film designed specifically for the imager.

Spectral Sensitivity of the Film

The Laser Imaging Film is infrared sensitive and has been sensitized to the infrared laser diode of the imagers. When handled according to instructions on the daylight-load film package, safelights are not needed. If you remove undeveloped film from the daylight-load package, you will need a darkroom setting and a green safelight.
Film Image Quality

The Laser Imaging Film delivers diagnostic-quality, continuous-tone images along with sharp alphanumerics and optimum contrast. This high-quality, silver-based film provides health care providers with the same diagnostic information they are accustomed to viewing—including spatial resolution, contrast, and gray levels. Because it is a totally dry imaging process, there is no image quality variability due to wet chemistry.

Environmental Impact

Tests show that the Laser Imaging Film is not considered hazardous to the environment. As a result, you can develop, recycle, and dispose of film with less impact on the environment than if you were using wet-developed silver halide films.

Table 1: Laser Imaging Film—US Environmental Regulations Comparison

<table>
<thead>
<tr>
<th></th>
<th>Wet (Silver Halide) Film</th>
<th>Dry Film</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developer</td>
<td>Required</td>
<td>Not required</td>
</tr>
<tr>
<td>Fixer</td>
<td>Required</td>
<td>Not required</td>
</tr>
<tr>
<td>Wash</td>
<td>Not required</td>
<td>Provided</td>
</tr>
<tr>
<td>Film</td>
<td>No limits</td>
<td>No limits</td>
</tr>
<tr>
<td>Use permits</td>
<td>Local</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Local</td>
<td>None</td>
</tr>
<tr>
<td>DOT</td>
<td>Hazardous</td>
<td>No limits</td>
</tr>
<tr>
<td></td>
<td>Hazardous</td>
<td>No limits</td>
</tr>
<tr>
<td>Disposal Regulations*†</td>
<td>Hazardous</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Hazardous</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

* There is no Superfund liability with dry Laser Imaging Film.
† State and local laws vary. Consult appropriate regulations or authorities prior to disposal.
Undeveloped Film Handling and Storage

To achieve consistent results up to the expiration date indicated on the film package, the Laser Imaging Film must be stored in a cool, dry place (4–24 °C, or 39–75 °F) and properly shielded from x-rays, gamma rays, or other penetrating radiation.

The film can withstand short-term temperature spikes (up to 35 °C, or 95 °F) for several hours without any significant effect on film quality or performance. Temperatures above 35 °C (95 °F) will gradually diminish shelf life.

Hands must be clean, dry, and free of lotions. Handle film carefully by the edges to avoid physical strains such as pressure, creasing, or buckling.

Developed Film Handling and Archival

Handling the Laser Imaging Film requires reasonable care. Spills, humidity, and other moisture typically have no significant effect on developed films. However, prolonged exposure to intense light or excessive heat (equal to or greater than 54.4 °C or 130.0 °F) for more than three hours may cause some gradual darkening of images. Leaving films in vehicles in hot climates for extended periods of time is not recommended.

For best results, store the film in sleeves when not being reviewed. The Laser Imaging Film can be left on a light box for more than 24 hours. In extreme cases in which the light boxes are exceptionally hot (equal to or greater than 49 °C or 120 °F), the manufacturer recommends removing them prior to eight hours of continuous exposure.

Take care when using spotlight viewing for more than 30 seconds because temperatures near the light source may exceed 82.2 °C (180.0 °F). Use in slide projectors is not recommended due to the high temperatures generally found in these devices.

With dry technology, a small amount of final development occurs when the film exits the imager and is initially exposed to ambient or view-box lighting. This is virtually undetectable and has no effect on image quality (typically 0.02 change in density). This small density increase is uniform and permanent upon full exposure of the film under normal handling conditions (room light or view box).

The Laser Imaging Film has been tested and can be archived for more than 100 years when stored at American National Standards Institute (ANSI) recommended storage conditions (equal to or less than 25 °C or 77 °F). Processing film should be stored within the temperature range of 16–27 °C, or 60–80 °F, and at 30–50 % RH. Developed films may be stored at higher temperatures; however, that will reduce the number of years the film can be stored. For example, storing films at a constant elevated temperature of 32.2 °C (90.0 °F) may reduce archive capability to 30 years.
Exposing Film to Moisture

The Laser Imaging Films typically withstand humidity, spills, and other forms of water without any significant effect on image quality or film integrity. If needed, film can be cleaned with a clean, damp cloth.

Odor Dissipation

Dry technology eliminates nearly all processing odors. While some low-level odors are produced during the development process, they pose no known adverse health risks. Processing odor levels are further reduced by non-hazardous, disposable filters in the imager. The filters trap most low-level odors and prevent them from dissipating into the work environment. To help maintain optimum performance, the filters require periodic replacement. The imager requires no special venting.

Heat Dissipation

The imager uses controlled heat to develop the Laser Imaging Film. The heat has virtually no effect on the air temperature of the work area. The amount of heat dissipated into an area during a day is typically less than the heat generated by two to four 100-watt light bulbs.

Film Recycling

According to the U.S. Environmental Protection Agency (EPA) standards, the Laser Imaging Film is not considered hazardous and requires no special disposal procedures. However, the film does contain silver and polyester that may be recovered by using one of several recycling processes.
5 Specifications

This section identifies the system specifications and the site requirements to operate the imager.

Equipment Specifications

<table>
<thead>
<tr>
<th></th>
<th>Unpacked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>66.6 cm (26.2 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>62.6 cm (24.6 in.)</td>
</tr>
<tr>
<td>Depth</td>
<td>64.9 cm (25.5 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>79 kg (175 lb)</td>
</tr>
</tbody>
</table>

Note
The approximate weight of a 35 x 43 cm (14 x 17 in.) film cartridge is 3.5 kg (7.7 lb).

Operating Requirements

- Allow 31 cm (12 in.) clearance around the top, sides, and back of the imager. This space is required to let the imager perform normal operator functions.
- The table or counter must be level (within 1°) and capable of supporting the imager’s weight.
- The recommended table or counter height is 71–76 cm (28–30 in.).
- Place the imager in an area with good ventilation. A small, confined room is not recommended.
- Avoid placing the imager in direct or excessive sunlight (for example, near a large window).
Environmental/Location Requirements

Temperature
- Operating: 15 to 33 °C (59 to 91 °F)
- Storage: -40 to 60 °C (-40 to 140 °F)

Relative Humidity
- Operating: 20–80 % RH, non-condensing
- Storage: 10–93 % RH, non-condensing

Altitude
-30 m (-100 ft) to 3,000 m (9,800 ft) above sea level

Surface Levelness
The surface where the imager is placed must be level within 1 °.

Environmental Effects
Acoustical noise:
- Less than 48 dB at 1 m during idle or standby
- Less than 75 dB momentary at 1 m during normal operation

Power Requirements
A power cord is provided with this equipment. All countries must use an Agency-approved power cord with a plug type suitable for the country of use. Contact a qualified dealer for help.

Connect the equipment to a power source that is suitable for the voltage and current ratings shown on the rating label. The single-phase power source, with grounding, must be provided within 2.5 m (8.0 ft) of the imager.

The wire must be insulation-rated for 600 V (ac). A dedicated line is recommended.

Network Requirements
The imager receives digital images from medical imaging devices (modalities) over a 10/100Base-T or 1000Base-T Ethernet Network.
## Publication History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Reason for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2016-03-31</td>
<td>First release</td>
</tr>
<tr>
<td>B</td>
<td>2016-03-31</td>
<td>Deleted a reference to a machine number.</td>
</tr>
</tbody>
</table>
Pre-Installation Manual

Use this checklist to prepare to install the imager. Review and complete these requirements.

- After you receive the imager, review the Safety Manual before starting the installation.
- When finished, return the signed Pre-Installation Manual to your Service Provider.

If you have questions, contact your Sales Representative or qualified Service Provider.

Power Requirements

A power cord is provided with this equipment. All countries must use an agency-approved power cord with a plug type suitable for the country of use. Connect the equipment to a power source that is suitable for the voltage and current ratings at your site:

- Input voltage = 90–132 V (ac), 50/60 Hz ± 3 Hz
- Input voltage = 180–264 V (ac), 50/60 Hz ± 3 Hz

The single-phase power source, with grounding, must be provided within 2.5 m (8.0 ft) of the imager.

The wire must be insulation-rated for input voltage = 600 V (ac). A dedicated line is recommended.

Network Requirements

The imager receives digital images from medical imaging devices (modalities) over a 10/100Base-T or 1000Base-T Ethernet Network.

During the installation, the Service Provider will enter the network information for the imager to let it communicate across the network.

Gather and record the information in the following table prior to the installation. See your site’s network administrator for help to gather the information. Have this page available when you start the installation.

<table>
<thead>
<tr>
<th>Required Information for the Laser Imager:</th>
<th>Complete the table:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host (Computer) Name</td>
<td></td>
</tr>
<tr>
<td>IP Address—Use the format: xxx.xxx.xxx.xxx</td>
<td></td>
</tr>
<tr>
<td>Subnet Mask—Use the format: xxx.xxx.xxx.xxx</td>
<td></td>
</tr>
<tr>
<td>Default Gateway—Use the format: xxx.xxx.xxx.xxx</td>
<td></td>
</tr>
<tr>
<td>DICOM Port Number—The default port number, 5040, is correct for most installations. If necessary, you can change it for your site. You will enter the port number in two places: at the modality and at the imager.</td>
<td></td>
</tr>
</tbody>
</table>
Location Requirements

- Allow 31 cm (12 in.) clearance around the top, sides, and back of the imager.
- The table or counter must be level (within 1°) and capable of supporting the imager’s weight.
- The recommended table or counter height is 71–76 cm (28–30 in.).
- Place the imager in an area with good ventilation. A small, confined room is not recommended.
- Avoid placing the imager in direct or excessive sunlight (for example, near a large window), or in an environment with dust, dirt, or airborne chemicals.
- Recommended temperature: mid-range within the operating environment: 15–33 °C (59–91 °F).
- Recommended relative humidity: mid-range within the operating environment: 20–80 % RH, non-condensing.

<table>
<thead>
<tr>
<th></th>
<th>Unpacked</th>
<th>Packed</th>
<th></th>
<th>Unpacked</th>
<th>Packed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>66.6 cm</td>
<td>98.0 cm</td>
<td>Depth</td>
<td>64.9 cm</td>
<td>83.9 cm</td>
</tr>
<tr>
<td></td>
<td>(26.2 in.)</td>
<td>(38.6 in.)</td>
<td></td>
<td>(25.5 in.)</td>
<td>(32.7 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>62.6 cm</td>
<td>85.0 cm</td>
<td>Weight</td>
<td>79 kg</td>
<td>98 kg</td>
</tr>
<tr>
<td></td>
<td>(24.6 in.)</td>
<td>(33.5 in.)</td>
<td></td>
<td>(175 lb)</td>
<td>(215 lb)</td>
</tr>
</tbody>
</table>

NOTE: The approximate weight of a 35 x 43 cm (14 x 17 in.) film cartridge is 3.5 kg (7.7 lb).

Film

Prior to installation, you must order and have available the appropriate film. The imager prints on KONICA MINOLTA Medical Imaging Film in the following sizes:
- 20 x 25 cm (8 x 10 in.)
- 25 x 30 cm (10 x 12 in.)
- 28 x 35 cm (11 x 14 in.)
- 35 x 43 cm (14 x 17 in.)

Blue and mammography film types are supported. Contact your Sales Representative with questions or for help ordering film.

Ready to start the installation?

Once you have completed and recorded the items in this checklist, please sign and return this form to your qualified Service Provider.

Your Signature: ____________________________

Date: ____________________________
Safety Manual

Publication No. AD3436_en
2016-03-31
## Contents

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### Publication History
Safety and Related Information

The information contained herein is based on the experience and knowledge relating to the subject matter gained by the manufacturer prior to publication.

No patent license is granted by this information.

The manufacturer reserves the right to change this information without notice and makes no warranty, express or implied, with respect to this information. The manufacturer shall not be liable for any loss or damage, including consequential or special damages, resulting from the use of this information, even if loss or damage is caused by the manufacturer’s negligence or other fault.

For product specifications, see the *Operation Manual*.

Safety, Warnings, and Cautions

Please read and understand all instructions before using this product.

⚠️ DANGER

This equipment is operated with hazardous voltage which can shock, burn, or cause death.

- Remove wall plug before servicing equipment. Never pull on cord to remove from outlet. Grasp plug and pull to disconnect. Do not attempt to service or repair the laser imager yourself to avoid exposure to dangerous voltage, laser beam, or other danger. Always call an authorized service provider for any service or repair.

- Do not operate equipment with a damaged power cord.

- Do not use an extension cord to power this equipment.

- Do not operate equipment with any of the safety interlocks overridden.

- Position the power cord so it will not be tripped over or pulled.

- Connect this equipment to a grounded wall outlet.

- A power cord is provided with this equipment. All countries must use an agency-approved power cord with plug type suitable for the country of use. Contact a qualified dealer for help.

- Do not operate equipment with the covers open.

⚠️ DANGER

This equipment contains moving parts that may be accessible to the user. Loose clothing, jewelry or long hair may cause personal injury or damage to the equipment.
**DANGER**
This equipment is not contained in a sealed cabinet. Do not use this equipment in locations where it can come in contact with liquids, including body fluids.

**Caution**
The operator must not touch or have contact *simultaneously* with the patient and the laser imaging system.

**Caution**
Do not use a cell phone within 2.0 m (6.6 ft) of a laser imager. This proximity includes any imager behind a wall adjacent to your location.

**Caution**
Do not use a microwave oven within 4.0 m (13.1 ft) of a laser imager. Electromagnetic radiation from a microwave oven is only an issue if after the oven door is closed and latched, the seal does not maintain an electromagnetic tight fit between the oven door and oven main housing. Determining if the seal has an electromagnetic tight fit requires special detection equipment.

**Caution**
Do not use in the presence of flammable anesthetics, oxygen, or nitrous oxide. This equipment does not have a gas-sealed electronics enclosure and could ignite any flammable or explosive gases present in its environment.

**Caution**
This equipment uses a DICOM network port, and is intended to connect to other medical devices over the network. It is not intended to be connected directly to other medical devices. Only qualified personnel may provide installation and service.

**Caution**
This device should not be used in close contact with MRI devices, due to possible very high magnetic fields near an MRI unit. The magnetic field in the area where this equipment is installed must be less than 50 G.

**Caution**
Do not substitute or modify any part of this equipment.
Caution
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the User Guide and other User Documentation, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution
Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

Caution
Do not use isopropyl alcohol to clean the exterior surfaces of the laser imager.

Caution
In the U.S., exhausted filters are considered to be non-hazardous waste according to the US Environmental Protection Agency Resource Conservation Recovery Act (RCRA). Municipality owned and licensed solid waste management facilities are an appropriate disposal option. Contact your local or state solid waste authorities to determine if additional disposal requirements apply. In other regions, contact local or regional solid waste authorities for proper disposal guidance.

Caution
Lithium batteries should only be replaced by an authorized service provider. The laser imager uses a lithium battery to power the clock and calendar circuitry. THERE IS A DANGER OF EXPLOSION IF THE BATTERY IS REPLACED INCORRECTLY. The battery must be replaced only with the same or equivalent type. The U.S. EPA’s RCRA does not regulate disposal of this lithium battery. Users should discard spent batteries in municipal trash unless their community offers a battery collection program. In other regions, contact local or regional solid waste authorities for proper disposal guidance.

Laser Warning
The equipment uses an invisible laser beam with a maximum power of 120 milliwatts. Laser radiation may be present when the machine operates without the rear cover installed. Covers with this label may only be removed by an authorized service provider. USE OF CONTROLS OR ADJUSTMENTS, OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN, MAY RESULT IN EYE DAMAGE.
Important

Install the printing system in a secure location to protect patient privacy rights if required by local regulations.

Safety Labels

Safety labels are attached to the laser imager in compliance with international standards.

English Text on Labels

Some names on the labels are shortened and left in English. Below is a key to understand the meanings of the shortened words on the labels:

<table>
<thead>
<tr>
<th>Symbol on label</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL</td>
<td>Model Number</td>
</tr>
<tr>
<td>SN</td>
<td>Serial Number</td>
</tr>
<tr>
<td>REF</td>
<td>CAT Number</td>
</tr>
<tr>
<td>P/N</td>
<td>Part Number</td>
</tr>
<tr>
<td>MANUFACTURED</td>
<td>Manufactured Date</td>
</tr>
<tr>
<td></td>
<td>Manufactured By</td>
</tr>
<tr>
<td></td>
<td>Operator must read the user documentation</td>
</tr>
<tr>
<td></td>
<td>Consult instructions for use</td>
</tr>
</tbody>
</table>
System Labels

**Laser Radiation Warning**

1. **Class 3B invisible laser radiation.** This label states: “When open and interlocks defeated, avoid exposure to the beam.”

2. **Hazard symbol**

<table>
<thead>
<tr>
<th>Symbol on label</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Warning Symbol" /></td>
<td>Attention! Consult accompanying documents</td>
</tr>
<tr>
<td><img src="image" alt="Ground Symbol" /></td>
<td>Protective earth (ground)</td>
</tr>
</tbody>
</table>

### Table 1: Laser specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Scanning (moving) laser beam emitting from a diode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>810 ±10 nanometers</td>
</tr>
<tr>
<td>Maximum power</td>
<td>120 mW</td>
</tr>
<tr>
<td>Beam divergence from Laser Diode</td>
<td>Minimum: 5 °, maximum: 32 °</td>
</tr>
</tbody>
</table>

**High Voltage Warning**

This warning label indicates that high voltage is present under panels or enclosures where labels are attached. These panels may only be removed by an authorized service provider.
## Back Panel and Agency Statements

**Figure 1:** Laser Imager Back Panel

<table>
<thead>
<tr>
<th>Item</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FCC compliance</td>
<td>Describes compliance, if applicable for the country of installation.</td>
</tr>
<tr>
<td>2</td>
<td>Serial plate</td>
<td>Shows the serial number and model number of the imager along with other important data items.</td>
</tr>
<tr>
<td>3</td>
<td>Product</td>
<td>States that the imager is a Laser Imaging Printer.</td>
</tr>
</tbody>
</table>
### Safety, Warnings, and Cautions

<table>
<thead>
<tr>
<th>Item</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
</table>
| Agency labels and Class 1 Laser Safety | • **High voltage.** Indicates that high voltage is present under panels where the label is attached. Only an authorized service provider should attempt access.  
• **Static Sensitive Equipment.** Identifies static-sensitive components. Connect a personal grounding strap to the appropriate ground before servicing this laser imager. These panels may only be removed by an authorized service provider.  
• **Radio Frequency Energy.** Indicates that the laser imager can radiate radio frequency energy. If not installed and used in accordance with the instructions, the laser imager may cause harmful interference to radio communications.  
• **Class 1 Laser.** Indicates that the laser imager complies with IEC requirements for Class 1 Laser systems. |
| Grounding reliability | States that grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked “Hospital Only” or “Hospital Grade.” |
| Safety sign ISO 7010–M002 | Indicates that the operator must read the user documentation. |
| 4 | Japanese import license | Allows importation into Japan. |
| 5 | Power cord inlet | Covers the power cord inlet when shipped from manufacturing. Shows the voltage at which the laser imager must be operated. The label is removed or moved during installation. |

### Hot Surface

**Figure 2:** Hot Surface Labels

This label indicates that you must use care where the label is installed to avoid possible burns.
Safety and Health Compliance

This equipment has been tested for and complies with the following Safety and Emissions Standards. Certificates of Compliance and Declarations of Conformity have been issued.

Safety Standards

United States

- 21 CFR 1040.10 Class I
  Code of Federal Regulations Title 21 Food and Drugs
  Chapter I Food and Drug Administration, Department of Health and Human Services
  Volume 8 - Parts 800 to 1299
  Subchapter J - Radiology Health
  Part 1040 - Performance Standards for Light Emitting Products
  Section 10 - Laser Products
- ANSI/AAMI ES60601-1 (2005+C1+A2)

Canada


Europe


International

EMC Standards

United States

- This equipment has been tested and been found to comply with the limits for a Class A digital device pursuant to part 15 of the FCC rules. Those limits are designed to provide reasonable protection against harmful interference in a commercial or light industrial installation.
- RF Exposure Guidance: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

Canada

- This Class A digital apparatus complies with Canadian ICES-003.
- CET APPAREIL NUM ENRIQUE DE CLASSE A EST CONFORME A LA NORME NMB-003 DU CANADA.
- This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Europe


Rest of World

Guidance and Manufacturer’s Declaration for Electromagnetic Emissions

The equipment is intended for use in the electromagnetic environment specified below. The customer or user of the equipment should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Emissions Test</th>
<th>Compliance</th>
<th>Electromagnetic Environment—Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions:</td>
<td>Group 1</td>
<td>The equipment uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>• EN 55011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CISPR 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF emissions:</td>
<td>Class A</td>
<td>The equipment is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>• EN 55011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CISPR 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harmonics emissions:</td>
<td>Class A</td>
<td>The equipment is suitable for use everywhere, including those establishments directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>• EN 61000-3-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-3-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage fluctuations and flicker emissions:</td>
<td>Complies</td>
<td></td>
</tr>
<tr>
<td>• EN 61000-3-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-3-3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Guidance and Manufacturer’s Declaration for Electromagnetic Immunity

The system is intended for use in the electromagnetic environment specified below. The customer or user of the laser imager should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment— Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD):</td>
<td>±6 kV contact ±8 kV air</td>
<td>±6 kV contact ±8 kV air</td>
<td>Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.</td>
</tr>
<tr>
<td>• EN 61000-4-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-4-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical fast transient/burst:</td>
<td>±2 kV for power supply lines</td>
<td>±2 kV for power supply lines</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>• EN 61000-4-4</td>
<td>±1 kV for input/output lines</td>
<td>±1 kV for input/output lines</td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-4-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surge:</td>
<td>±1 kV differential mode ±2 kV common mode</td>
<td>±1 kV differential mode ±2 kV common mode</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>• EN 61000-4-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-4-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage dips, short interruptions and voltage variations on power supply lines:</td>
<td>&lt;5 % UT* (95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles &lt; 5 % UT (&gt; 95 % dip in UT) for 5 sec.</td>
<td>&lt; 5 % UT (&gt; 95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles &lt; 5 % UT (&gt; 95 % dip in UT) for 5 sec.</td>
<td>Mains power quality should be that of a typical commercial or hospital environment. If the user of the laser imager requires continued operation during power mains interruptions, it is recommended that the laser imager be powered from an uninterruptible power supply or a battery.</td>
</tr>
<tr>
<td>• EN 61000-4-11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-4-11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power frequency (50/60 Hz) magnetic field:</td>
<td>3 A/m</td>
<td>3 A/m</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>• EN 61000-4-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IEC 61000-4-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* UT is the AC mains voltage prior to application of the test level
Guidance and Manufacturer’s Declaration for Electromagnetic Immunity

The equipment is intended for use in the electromagnetic environment specified below. The customer or user of the laser imager should ensure that it is used in such an environment.

Portable and mobile RF communications equipment should be used no closer to any part of the system, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment—Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted RF</td>
<td>IEC 61000-4-6</td>
<td>3 Vrms</td>
<td>d = 1.17 $\sqrt{P}$</td>
</tr>
<tr>
<td></td>
<td>3 Vrms</td>
<td>3 Vrms</td>
<td></td>
</tr>
<tr>
<td>Radiated RF</td>
<td>IEC 61000-4-3</td>
<td>3 V/m</td>
<td>$d = 1.17 \sqrt{P}$ 80 MHz to 800 MHz</td>
</tr>
<tr>
<td></td>
<td>3 V/m</td>
<td>3 V/m</td>
<td>$d = 2.33 \sqrt{P}$ 800 MHz to 2.5 GHz</td>
</tr>
</tbody>
</table>

Where $d$ is the recommended separation distance in meters (m) and $P$ is the maximum output rating of the transmitter in watts (W) according to the transmitter manufacturer.

Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey*, should be less than the compliance level in each frequency range†.

Interference may occur in the vicinity of equipment marked with the following symbol:

Note

At 80 MHz and 800 MHz, the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

* Field strengths from fixed transmitters, such as base station for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the laser imager is used exceeds the applicable RF compliance level above, the laser imager should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the laser imager.

† Over the frequency range 150 kHz–80 MHz, field strengths should be less than 3 V/m.
### Recommended Separation Distance Between Portable and Mobile RF Communications Equipment and the System

The equipment is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the equipment can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communication equipment (transmitters) and the equipment as recommended below, according to the maximum output of the communications equipment.

<table>
<thead>
<tr>
<th>Rated Maximum Output Power of Transmitter (P)</th>
<th>Separation Distance (d) According to Frequency of Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watts</td>
<td>150 kHz–80 MHz</td>
</tr>
<tr>
<td>Watts</td>
<td>d = 1.17 √ P</td>
</tr>
<tr>
<td>0.01</td>
<td>0.12</td>
</tr>
<tr>
<td>0.10</td>
<td>0.37</td>
</tr>
<tr>
<td>1.00</td>
<td>1.17</td>
</tr>
<tr>
<td>10.00</td>
<td>3.70</td>
</tr>
<tr>
<td>100.00</td>
<td>11.70</td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

**Note**

At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.
EU Directives


Figure 3: Recycling Label

In the European Union, this symbol indicates that when the last user wishes to discard this product, it must be sent to the appropriate facilities for recovery and recycling. Contact your local authorized representative for additional information.

CE Marking

Documents concerning the conformance of this product to Council Directive 93/42/EEC of 14 June 1993 concerning Medical Devices can be obtained from the Konica Minolta Representative at:

Konica Minolta Medical & Graphic Imaging Europe B.V.
Hoogoorddreef 9,
1101 BA Amsterdam,
The Netherlands
TEL. +31-20-658-4100
# Publication History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Reason for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2016-03-31</td>
<td>First release</td>
</tr>
</tbody>
</table>