Carestream DENTAL

CS 1200

# User and Installation Guide

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We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system.

**WARNING: We recommend that you consult the "Safety Sheet" and the "Safety and Regulatory Guide" before using the CS 1200 Systems.**

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US Federal law restricts this device to sale by or on the order of a dentist.

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# 1 Conventions in This Guide

## Conventions in This Guide

The following messages emphasize information or indicate potential risk to personnel or equipment:

**WARNING: Warns you to avoid injury to yourself or others by following the safety instructions precisely.**

**CAUTION: Alerts you to a condition that might cause serious damage.**

**Important: Alerts you to a condition that might cause problems.**

**Note:** Emphasizes important information.

**Tip:** Provides extra information and hints.

# 2 CS 1200 Intraoral Camera Overview

The CS 1200 intraoral camera is an easy-to-use, simple-to-share, and high quality imaging system. It has three connection configurations based on which model you purchased:

- USB
- S-Video
- AV

When connected to a computer, it has the following functions:

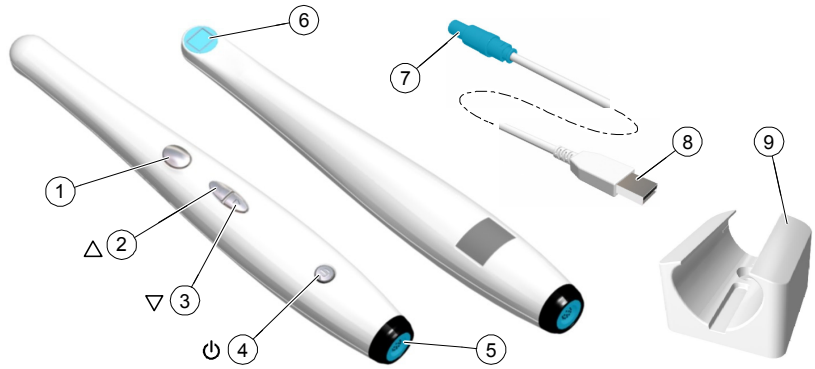
- Recording videos
- Capturing images
- Reviewing recorded videos and captured images

When connected to a monitor, it has the following functions:

- Capturing Images
- Reviewing images.

## Camera Overview

**Figure 1 Camera Components Overview**




| | | |
|---|---|---|
| **1** | Capture button | Press to capture an image. |
| **2** | Review button (backward) | Press to view the previous image. |
| **3** | Review button (forward) | Press to view the next image. |
| **4** | Power button (LED indicator) | • Press 3 seconds to power ON.<br>• Press 3seconds to power OFF.<br>• Press 1 second to turn OFF the LED of the lens window.<br>• indicates the power is ON.<br>• indicates the power is OFF. |

| | | |
|---|---|---|
| **5** | Cable connection | • USB<br>• S-Video<br>• AV |
| **6** | Camera Lens | |
| **7** | Push-pull connector | |
| **8** | USB Connector | |
| **9** | Camera holder | |
| **10** | Protective Sheaths (not pictured) | |

# 3 CS 1200 Software Overview

## Minimum Computer System Requirements

If necessary, you must update your computer system configuration.

| Item | Minimum System Requirement |
|---|---|
| **CPU** | 1.8 GHz Intel Pentium IV |
| **RAM** | 1 GB |
| **Monitor** | 1024 x 768 minimum screen resolution - 32 bits color mode |
| **Operating system** | • Windows XP SP3 (32 bits)<br>• Windows Vista (32 or 64 bits)<br>• Windows 7 (32 or 64 bits) |
| **USB port** | USB 2.0 high speed port |
| **CD/DVD drive** | DVD-ROM drive is required to install the product. |
| **Video memory** | 128M (integrated or dedicated) |
| **Video card driver** | Support OpenGL version 1.4 or higher |

The computer should be situated in or close to the operating area, in the visual field of the practitioner when using the camera.

**Note:** The quality of images is affected by the quality of the monitor and monitor settings. See your monitor user's guide for information.

## General Software Overview

The CS 1200 intraoral imaging system operates with the following software:

- Imaging Software
- Imaging software using TWAIN interface
- CS1200 **Acquisition** interface

## CS 1200 Acquisition Interface Overview

The CS 1200 **Acquisition** interface can acquire, review, and store videos and images of the oral cavity.

**Figure 2 Acquisition Interface Overview**

1 **Title Bar:** Displays the patient's name.

2 **Toolbar:** See "Toolbar Overview" on page 6.

3 **View Screen:** Displays live video, selected captured image, or recorded video.

4 **Image Gallery:** Displays thumbnails of all captured images and recorded videos.

## Toolbar Overview

The **Toolbar** enables you to manage the following features:

- Live video recording, viewing, and managing features.
- Image capturing, viewing, and managing features.

### Video Toolbar

The video toolbar enables you to launch, record, and play a live or recorded video.

**Video record** button: Records a live video.

**Play** button: Plays a recorded video.

**Pause** button: Pauses a recorded video.

**Stop** button: Stops a recorded video.

### Image Toolbar

The image toolbar enables you to capture, view, and manage a still image.

**Capture** button: Captures an image.

**Reset** button: Clears all changes made to an image.

**Rotation** button: Rotates an image 45°.

**Rotation** button: Rotates an image 90°.

### Common Video and Image Toolbar

The following buttons are sharedby the video and image screens:

**Live video** button: Launches the live video.

**Review** button: Reviews images and recorded videos.

**Tooth chart comment** button: Accesses the tooth chart dialog box to associate a tooth/teeth with the selected image and enables you to write comments in the **Comments** field.

**Select a format** button: Click to access the last selected format. Click to access the **Select a format** dialog box to select a new display format.

**Mirror image and Video** button: Mirror the live video and the captured images.

**Full screen** button: Displays the live video, recorded video, and the captured images in full screen.

**Exit** button: Closes the acquisition interface.

**USB connection status** icon: Displays the camera USB connection status.
If the icon is red, the USB is disconnected.

**Preference** button: Accesses the preference dialog box.

**Information** button: Accesses information on the software version, firmware version, and camera serial number.

**Online help** button: Accesses the online help.

### Image Gallery Toolbar

The image gallery toolbar enables you to manage videos and images displayed in the image gallery.

**Scroll** button: Scrolls images and recorded videos in the image gallery.

**Delete** button: Deletes selected images and recorded videos.

**Delete all** button: Deletes all images and recorded videos in the image gallery.

**Restore** button: Restores the last deleted image or recorded video.

## Dialog Boxes Monitor Connection Overview

### Transfer Toolbar

The transfer toolbar enables you to transfer images from the camera to the **Acquisition** interface or to the computer. The transfer toolbar displays when the camera supports the monitor connection.

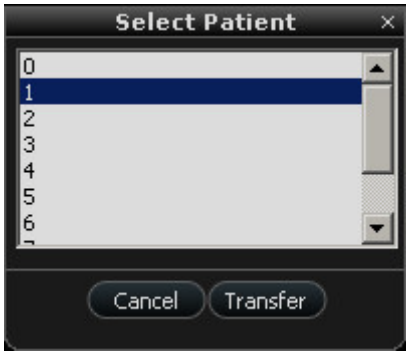
**Transfer to ACQ** button: Transfers images from the camera to the **Acquisition** interface.

**Transfer to Hard Disk** button: Transfers images from the camera to the computer.

### Select Patient Dialog Box

The **Select Patient** dialog box enables you to transfer images of the selected patient number to the **Acquisition** interface.

**Figure 3 Select Patient Dialog Box**

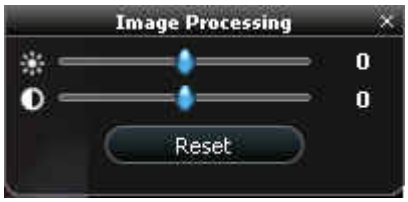


## Dialog Boxes Overview

### Image Processing Dialog Box

The image processing dialog box enables you to manage the image contrast and brightness.

**Figure 4 Image Processing Dialog Box**



**Brightness** button: Adjusts the brightness of the image.

**Contrast** button: Adjusts the contrast of the image.

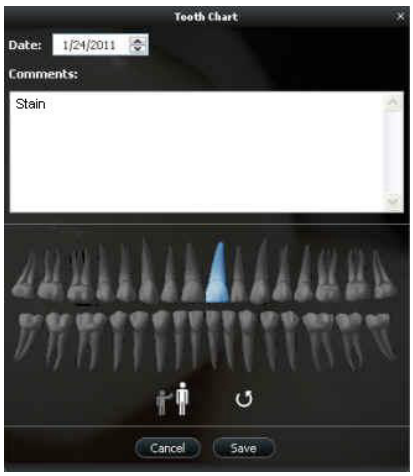
**Scroll** button: Increases or decreases the brightness and contrast of the image.

**Reset** button: Clears all brightness and contrast changes made to the image.

### Tooth Chart Dialog Box

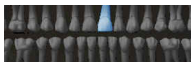
The tooth chart dialog box enables you to select tooth numbers associated with the image or video.

**Figure 5 Tooth Chart**



**Date** field: Displays the current date.

**Comments** field: Enables comments to be associated with an image or video.



**Dental arch**: Enables tooth selection.

**Adult** dental arch: Enables tooth selection for an adult.

**Child** dental arch: Enables tooth selection for a child.

**Reset** button: Clears all tooth selections.

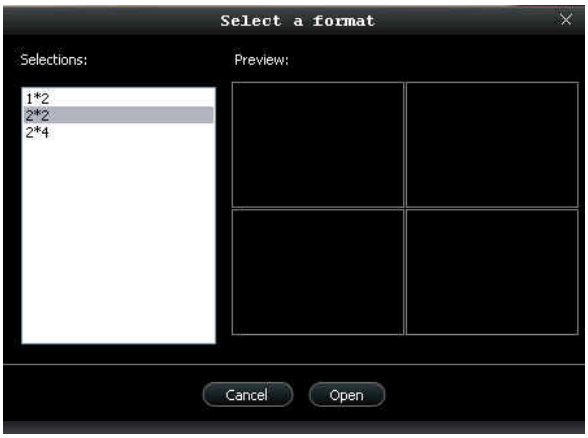
**Cancel** button: Cancels all tooth selections.

**Save** button: Saves tooth selections.

### Select a Format Dialog Box

The **Select a format** dialog box enables you to select the display format you want.

**Figure 6 Select a Format Dialog Box**



**Selection** field: Enables you to select the display format you want.

**Preview** field: Enables you to preview the selected display format.

**Cancel** button: Cancels the format selection.

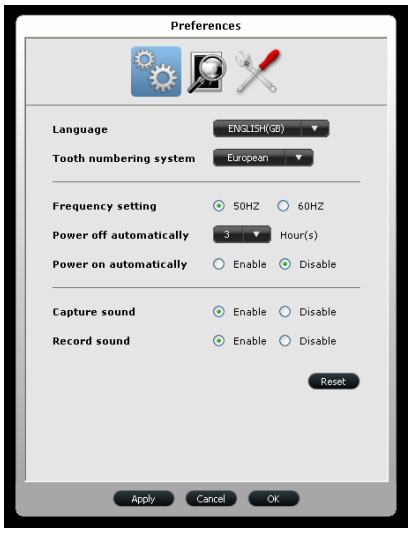
**Open** button: Opens the format selection.

## Preferences Dialog Boxes Overview

The preference dialog boxes enable you to select the camera and acquisition software settings. Set up your preferences before using the camera.

### General Preferences

**Figure 7 General Preferences**




General Preferences enable you to:

- **Language**: Select the menu language.
- **Tooth numbering system**: Select the tooth numbering system.
- **Frequency setting**: Select the local electric frequency.
- **Power off automatically**: Select the camera's automatic power off time, from 1-9 hours.
- **Power on automatically**: Enable/Disable the camera's automatically power on feature for the cameras support monitor connection.
- **Capture sound**: Enable/disable the audio sound when an image is captured.
- **Record sound**: Enable/disable the audio sound when a video is recorded.

**Important: Ensure that the proper frequency setting is selected for your region. The wrong setting can negatively impact image quality.**

## Video Adjustment Preferences

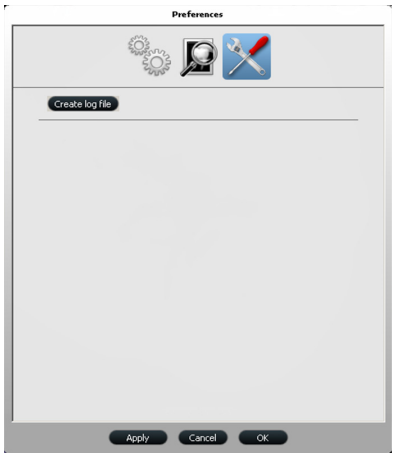
**Figure 8 Video Adjustment Preferences**

Video Adjustment Preferences enable you to adjust the following settings:

- **Brightness Setting**: Select the video brightness setting.
- **Contrast Setting**: Select the video contrast setting.

## Tools Preferences

**Figure 9 Tool Preferences**




Tool Preferences enable you to

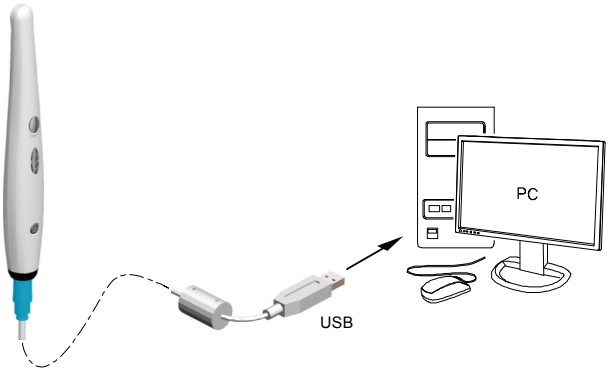
- **Create log file**: Save log files for service information.

# 4 Setting Up the CS 1200 Intraoral Camera

## Connecting the Camera to a Computer and Installing the Software

To connect the camera to a computer, follow these steps:

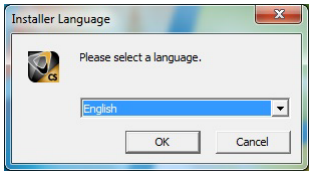
1 Connect the camera to the computer.



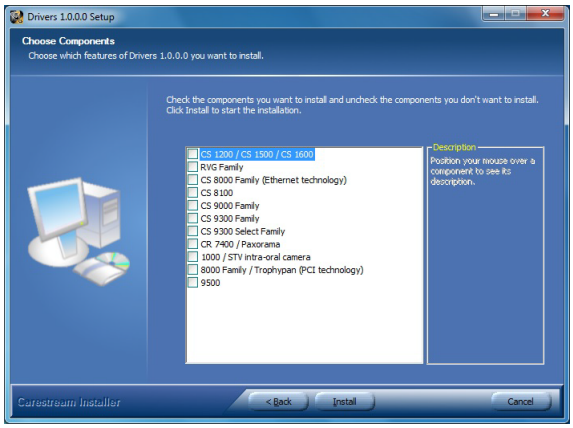

2 Insert Carestream's **Dental Imaging Software Suite** DVD to install the Dental Imaging Software (see the Dental Imaging Software installation guide).

To install the imaging software using TWAIN interface, see your imaging software user guide.

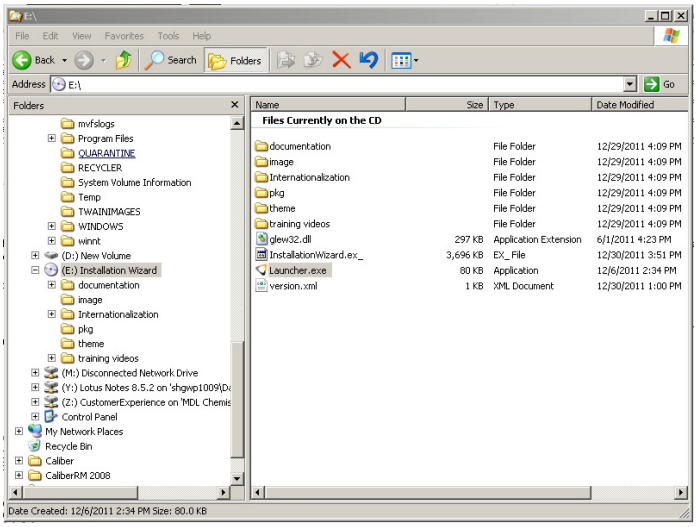
3 Insert the **Drivers** DVD to install the Intraoral Camera driver. The **Choose Setup Language** dialog box is displayed. Select the installation language and click **OK**.




When you are prompted with the **Choose Components** screen, select **CS 1200/ CS1500/ CS 1600**.



For TWAIN users, insert the **CS Intraoral Cameras Installation Wizard** DVD. If the DVD does not run automatically, navigate to your DVD drive in Windows Explorer and double-click the **Launcher.exe** file.




4 Follow the on-screen instructions to install the **Acquisition** interface and set up the camera.

If you are prompted with the following pop-ups:

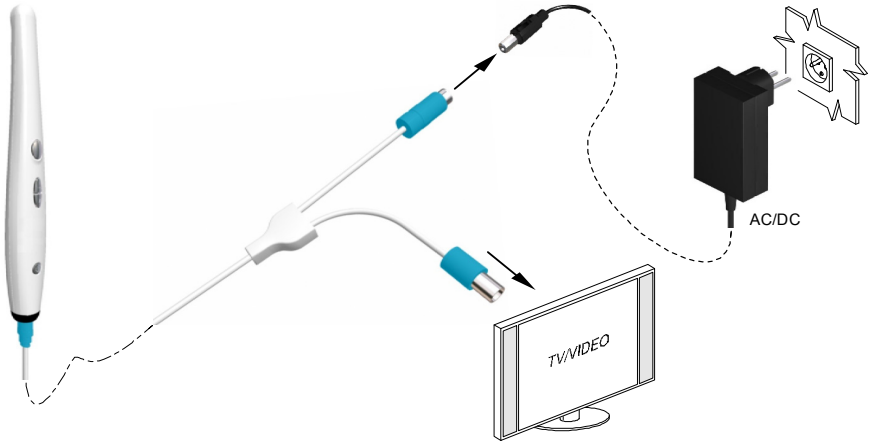
- Click **Continue Anyway**.

- Check **Always trust software from "Carestream Health"** and click **Install**.

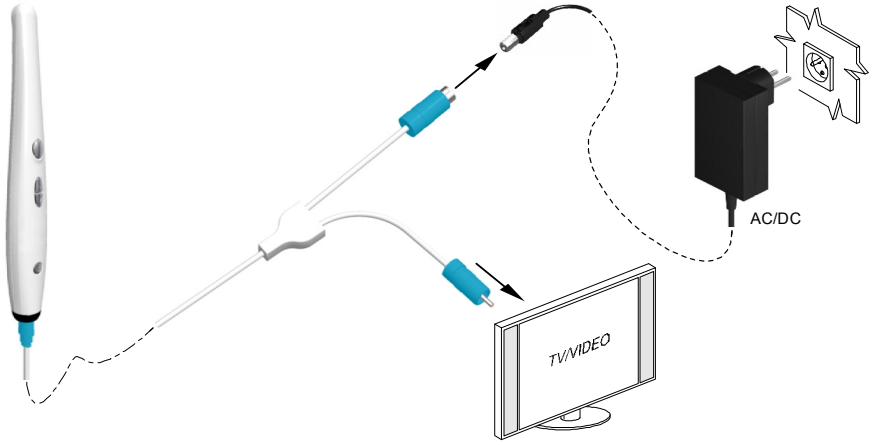
## Connecting the Camera to a Monitor

To connect the camera to a monitor, follow the instructions in the Figures below.

### S-Video Connection




### AV Connection

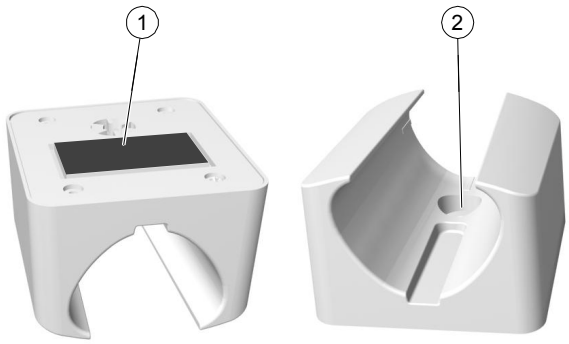


# Installing the Camera Holder

## Camera Holder Components Overview

Place the camera in the holder when you are not using the camera.

**Figure 10 Camera Holder Components Overview**




**1** Adhesive tape

**2** Opening to fasten the holder securely to the mounting surface using a screw

## Installing the Camera Holder

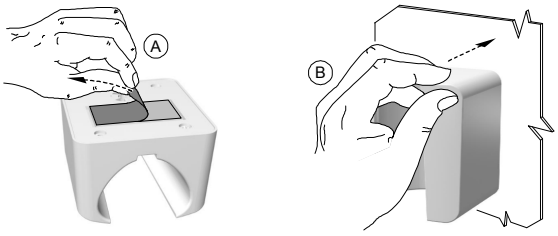
To install the camera holder, follow these steps:

1 Choose a clean area on the wall that you can access easily.

2 Clean the surface on which you are going to fasten the camera holder.

3 Remove the adhesive tape protection from the support (A).

4 Place the taped side of the camera holder on the clean surface (B) and press firmly several times for correct adherence. The maximum adherence is obtained after two hours.



**Important: You must avoid all stress on the camera holder during the first 2 hours.**

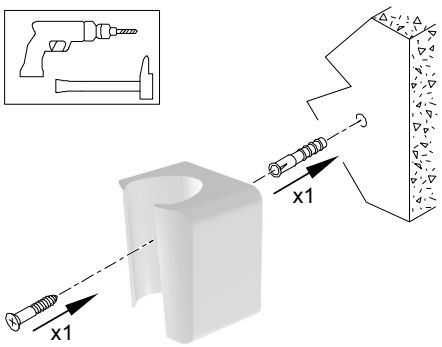
**Important: If you use the adhesive tape to fix the camera holder, it may lose its adherence capability due to environmental and other factors. Check the adherence regularly to ensure that it is secure.**

**Important: Carestream Health is not responsible for accidents involving the camera dropping due to loosening of the adhesive tape.**

**Note:** The camera automatically goes into sleep mode when inserted into the camera holder or left idle for 1.5 minutes. To use it again, pick it up or press the Capture button.

**Note:** When the camera is idle for more than 3 hours(default), it powers off. To change the default automatic power-off time, see "General Preferences" on page 11.

5 For places on which you cannot use the adhesive tape, insert a screw through the appropriate hole in the camera holder to fix it to a solid surface.



# 5 Getting Started

## Accessing the Acquisition Interface

To access the **Acquisition** interface, follow these steps:

1 In the **Imaging** window,

- If you installed only the CS 1200, or you have installed the CS 1500 and/or CS 1600 camera before the CS 1200, click or .
- If you have installed a K 1000 camera before the CS 1200, click the arrow button on **or** , and select the CS 1200 camera option from the drop-down list.

The **Acquisition** interface is displayed.

2 Select your preference settings.

## Setting up Preferences

Set up your preferences before using the camera. To set up the preferences, follow these steps:

1 On the acquisition interface, click to access the preferences dialog boxes. The preference dialog box is displayed.

2 Click to set the **General Preferences**.

3 Click to set the **Video Adjustment Preferences**.

4 Click to select the **Tool Preferences**.

You can now capture images or record videos.

# Using the Imaging Software with TWAIN

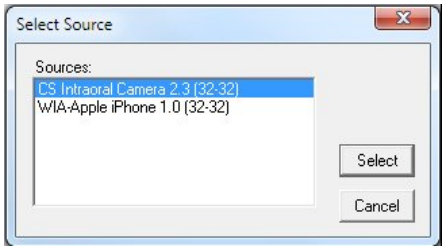
## Starting the Imaging Software

To acquire an image using imaging software via TWAIN, follow these steps:

1 From your imaging software, such as Photoshop, open the **TWAIN** interface.

For example, in Photoshop, go to **Import** > **Select Source**.

The **Select Source** window is displayed.




2 Select **CS Intraoral Camera 2.3 (32-32)**, and click **Select**.

3 Open the **Acquisition** interface using the TWAIN interface; see the user guide for your imaging software.

**Note:** The software used for image acquisition must be compliant with TWAIN.

TWAIN has the following limitations:

- TWAIN does not support the video file or tooth comment within the **Acquisition** interface. The video file or tooth comment feature is disabled.
- After capturing images, click , to return to the imaging software interface. If the imaging software supports multiple image transfers, all images will be transferred. If the imaging software supports only one single image transfer, either the first or the last acquired image will be transferred.

**Note:** If the message **Camera setting changed, please restart your third party software** is displayed, you must restart the software, then reopen the **Acquisition** interface.

## Setting Up Preferences

Set up your preferences before using the camera. To set up the preferences, see"Setting up Preferences" on page 19.

You can now capture images.

# 6 Recording Video and Capturing Images on a Computer

## Preparing for Acquisition

### Preparing the Camera

The protective sheath covers the camera and provides a sanitary shield for the patient. **Use a new protective sheath with each patient**. **Always discard the protective sheath after each use.** For additional protective sheaths, contact your dealer or the protective sheaths manufacturer.

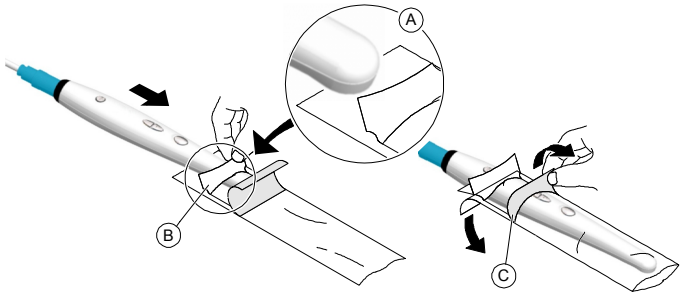
**Important: Only use the protective sheaths designed specifically for this camera.**

To prepare the camera, follow these steps:

1 Make sure the window is clean by wiping it with a moist lint-free cloth or lens tissue.

2 Place the protective sheath, paper side down, on a flat surface.

3 With the camera window facing down (A), insert the camera all the way into the protective sheath between the protective sheath's white tab and paper backing (B).




4 Hold the protective sheath in place on the camera by gently pressing the white tab against the camera with your thumb or finger.

5 Pull the blue tab on the front of the protective sheath straight down away from the camera (C) until the paper backing is pulled away. Discard the paper backing, leaving the clear plastic protective sheath on the camera.

6 Adjust the protective sheath if necessary. The end should be tight to prevent fogging or blurring of the image.

**Note:** Installing the sheath incorrectly has a negative effect on image quality.

# Acquiring Live Video or Images

## Accessing the Acquisition Interface

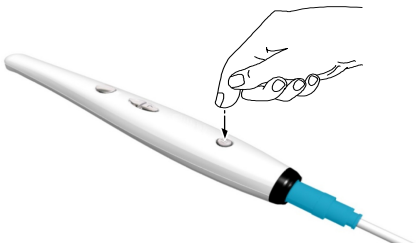
To access the **Acquisition** interface,

- If you use the Imaging Software, click or in the **Imaging Window** and select your camera.
- If you use imaging software via TWAIN interface, see the user guide of your imaging software to open **Acquisition** interface.

## Recording or Viewing a Video

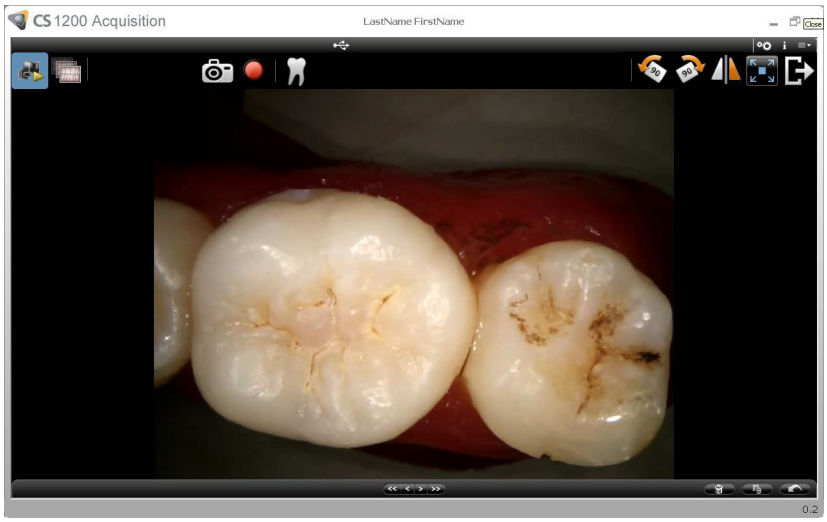
To record or view a video, follow these steps:

1 Press the ON/OFF button 3 seconds to power on the camera.



2 Hold the camera over the area you want to view. Live video appears on the **Preview** screen.

3 To record the video, on the **Acquisition** interface, click to record and click again to stop the recording.




The **Preview screen** of the **Acquisition** interface shows the video recording.

4 Use the video toolbar to view the recorded video (see “Video Toolbar” on page 6).

5 Use the image gallery toolbar to navigate, save, or delete the recorded video (see“Image Gallery Toolbar” on page 7).

6 Click to close the **Acquisition** interface and return to the imaging software interface.

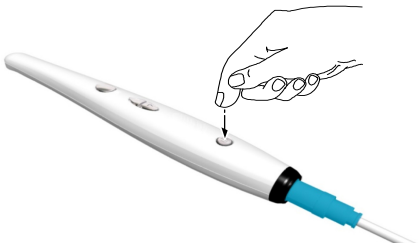
The recorded video is saved and displayed in the **Patient history**.

7 Remove and dispose of the protective sheath.

## Capturing and Viewing Images

To capture or view an image, follow these steps:

1 Press the ON/OFF button 3 seconds to power on the camera.



2 Hold the camera over the area you want to view. Live video appears on the **Preview** screen.

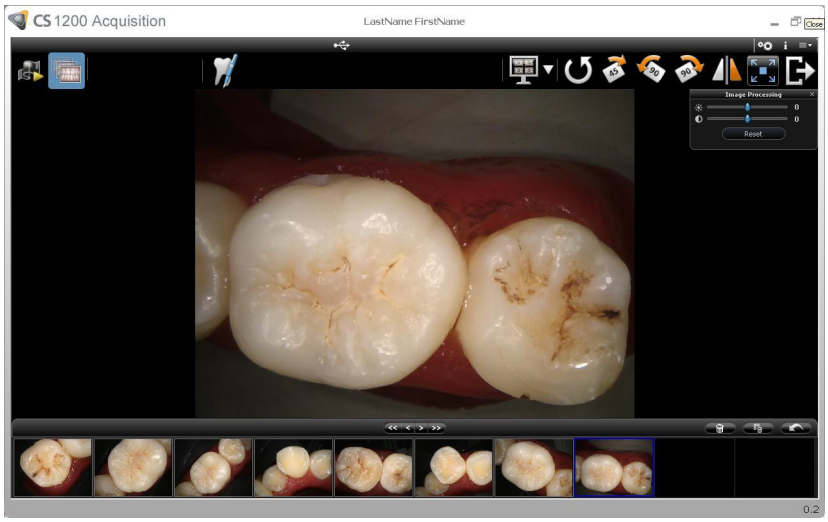
3 To capture an image, do the following:

Press the Capture button on the camera.

**OR**

Click on the **Acquisition** interface.

The **Review screen** of the **Acquisition** interface shows the image.




4 Click to access the **Tooth Chart** dialog box and select the relevant tooth and write comments in the **Comments** field (see “Tooth Chart Dialog Box” on page 9).

The selected images are displayed and saved temporarily in the image gallery.

5 Use the toolbar to view the image (see “Image Toolbar” on page 7).

6 Press the review button on the camera to review the images.

**OR**

Use the image gallery toolbar to navigate, save, or delete the images (see"Image Gallery Toolbar" on page 7).

7 Click to close the **Acquisition** interface.

The images are saved and displayed in the **Patient history**.

8 Remove and dispose of the protective sheath.

**Note:** The camera automatically goes into sleep mode when inserted into the camera holder or left idle for 1.5 minutes. To use it again, pick it up or press the Capture button.

**Note:** When the camera is idle for more than 3 hours(default), it powers off. To change the default automatic power-off time, see "General Preferences" on page 11.

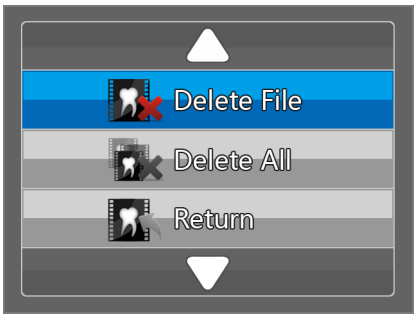
# 7 Capturing Images on a Monitor and Transferring Images to a Computer

## Monitor Interface Overview

### Delete File Dialog Box

The **Delete File** dialog box enables you to select delete options for the current image.

**Figure 11 Delete File Dialog Box**



**Delete File** button: Enables you to delete the current image.

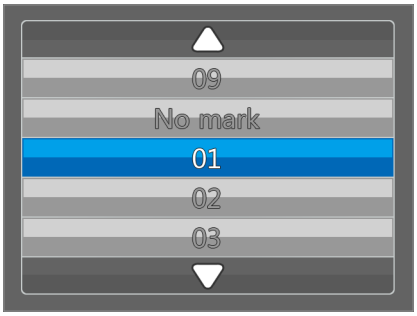
**Delete All** button: Enables you to delete all images stored in the camera.

**Return** button: Returns to the review mode.

### Patient Number Dialog Box

The **Patient Number** dialog box enables you to assign a number to each patient. The selected number is displayed on the monitor and on each image of that specific patient. At the same time, you can have a total of 9 patients.

**Figure 12 Patient Number Dialog Box**



# Preparing for Acquisition

## Preparing the Camera

The protective sheath covers the camera and provides a sanitary shield for the patient. **Use a new protective sheath with each patient**. **Always discard the protective sheath after each use.** For additional protective sheaths, contact your dealer or the protective sheaths manufacturer.

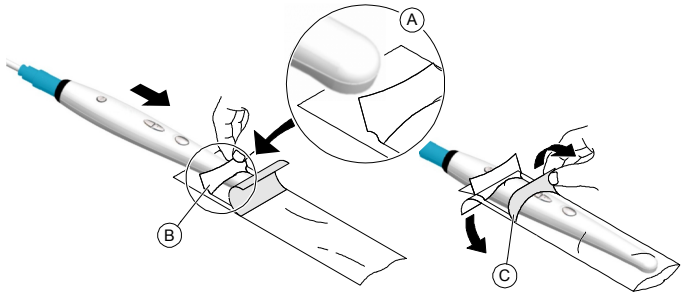
**Important: Only use the protective sheaths designed specifically for this camera.**

To prepare the camera, follow these steps:

1 Make sure the window is clean by wiping it with a moist lint-free cloth or lens tissue.

2 Place the protective sheath, paper side down, on a flat surface.

3 With the camera window facing down (A), insert the camera all the way into the protective sheath between the protective sheath's white tab and paper backing (B).




4 Hold the protective sheath in place on the camera by gently pressing the white tab against the camera with your thumb or finger.

5 Pull the blue tab on the front of the protective sheath straight down away from the camera (C) until the paper backing is pulled away. Discard the paper backing, leaving the clear plastic protective sheath on the camera.

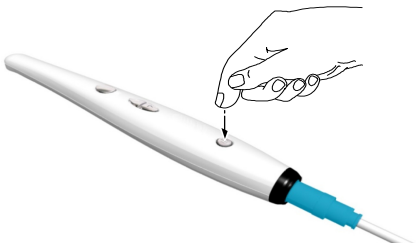
6 Adjust the protective sheath if necessary. The end should be tight to prevent fogging or blurring of the image.

**Note:** Installing the sheath incorrectly has a negative effect on image quality.

# Capturing, Viewing and Deleting Images

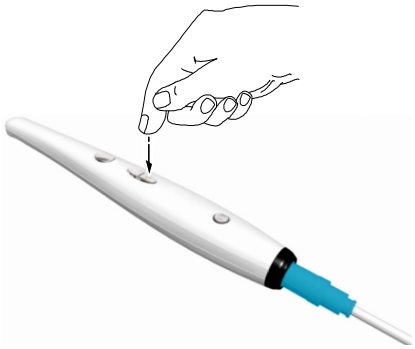
## Assigning a Number to a Patient

1 Press the ON/OFF button 3 seconds to power on the camera and the live video mode displays.



2 Press the review button for 3 seconds. The **Patient Number** dialog box is displayed.

3 Press the review button to assign a number to the patient.



4 Press the Capture button to confirm the selection. The live video mode is displayed.

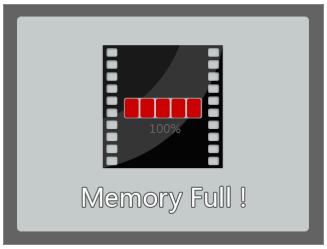
## Capturing Images

To capture an image, follow these steps:

1 Hold the camera over the area you want to view.

2 Press the Capture button on the camera to capture an image.

If you are prompted with the following message, you have to either delete images or transfer images to the computer.




For how to delete images, see“Deleting Images” on page 29. For how to transfer images to the computer, see “Transferring Images” on page 29.

**Note:** The camera can store up to 300 images.

3 Remove and dispose of the protective sheath when you have finished with the current patient.

**Note:** The camera automatically goes into sleep mode when inserted into the camera holder or left idle for 1.5 minutes. To use it again, pick it up or press the Capture button.

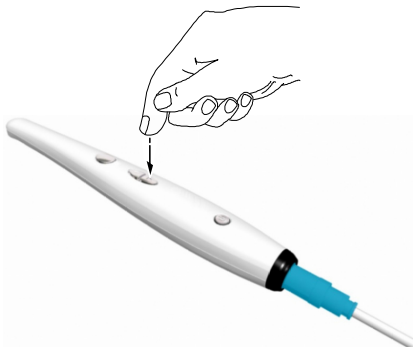
**Note:** When the camera is idle for more than 3 hours(default), it powers off. To change the default automatic power-off time, see “General Preferences” on page 11.

## Viewing Images

To review images stored in the camera, follow these steps:

1 Press the Capture button to access the review mode.

2 Press the review button to review one by one all the stored images.

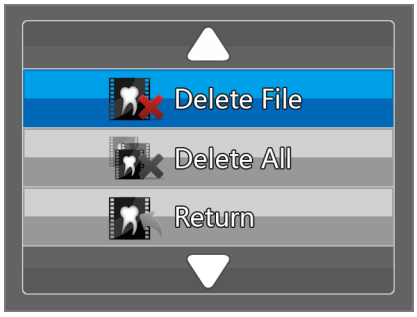


3 Press the Capture button again to return to the live video mode.

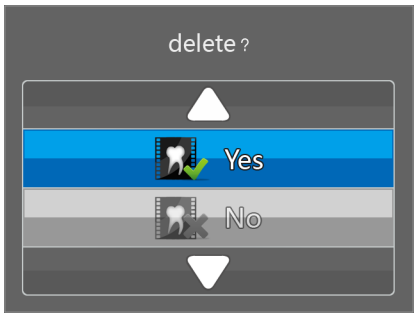
## Deleting Images

To delete images stored in the camera, follow these steps:

1 In the review mode, press the Capture button for 3 seconds. The **Delete File** dialog box is displayed.




2 Use the review button on the camera to select **Delete File** or **Delete All**, and press the Capture button. The **Delete** dialog box is displayed.




3 Select the **Yes** button, and press the Capture button on the camera.

After deleting the image(s), the screen returns to the review mode.

# Transferring Images

## Transferring Images to Acquisition Interface

To transfer images from the camera to the **Acquisition** interface in the computer, follow these steps:

1 Press the ON/OFF button 3 seconds to turn off the camera.

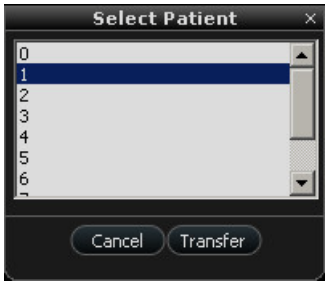
2 Disconnect the camera from the monitor and connect it to the computer which has the **Acquisition** interface.

To connect the camera to the computer, see “Connecting the Camera to a Computer and Installing the Software” on page 13.

3 Press the ON/OFF button 3 seconds to turn on the camera.

4 In the **Imaging window**, click and select your camera. The **Acquisition** interface is displayed.

5 On the **Acquisition** interface, click **Transfer to Software** button. The **Select Patient** dialog box displays.




6 Select the patient number and click **Transfer**.

After the transferring is completed, the images are deleted automatically from the camera.

## Transferring Images to the Computer Hard Disk

To transfer images from the camera to the computer hard disk, follow these steps:

1 Press the ON/OFF button 3 seconds to turn off the camera.

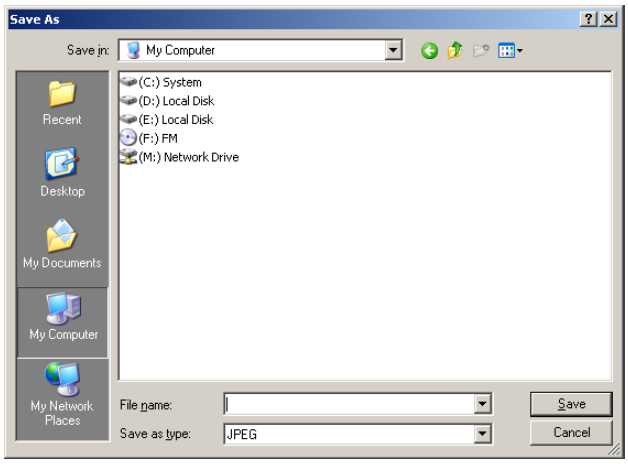
2 Disconnect the camera from the monitor and connect it to the computer which has the **Acquisition** interface.

To connect the camera to the computer, see "Connecting the Camera to a Computer and Installing the Software" on page 13.

3 Press the ON/OFF button 3 seconds to turn on the camera.

4 In the **Imaging window**, click and select your camera. The **Acquisition** interface is displayed.

5 On the **Acquisition** interface, click **Transfer to Hard disk** button. The **Save as** window is displayed.




6 Select a folder or create a new folder to save the images. Click **Save**.

After the transferring is completed, the images are deleted automatically from the camera.

# 8 Maintenance

Perform the following maintenance activities on your camera and accessories regularly.

The camera is not delivered in disinfected condition. To ensure maximum hygienic safety for the patient, carefully follow the instructions to disinfect the camera before use (see “Cleaning and Disinfecting the Camera” ).

**Important: Before following the maintenance instructions, make sure that you have read the Safety Sheet and the Safety and Regulatory guide.**

## Cleaning and Disinfecting the Camera

### General Warnings

**WARNINGS:**

- **Read and follow the warnings and personal protection instructions provide in the Material Safety Data Sheet (MSDS) of the disinfectant before use.**
- **The disinfectant should be approved by the applicable competent authority for use on a dental medical device.**
- **You must wear gloves while handling and using the camera.**
- **Always protect the camera with a hygienic barrier sheath before use.**
- **The camera must be disinfected with an EPA-registered intermediate-level disinfectant solution with tuberculocidal activity between patients.**
- **DO NOT use a disinfectant containing phenolics or iodophors, doing so will damage the surface coating of the camera.**
- **Never put the camera in a sterilizing device or immerse it completely.**
- **Excessive fluids can damage the camera.**
- **Not protected against water spray.**

## Cleaning the Camera

If the camera is visibly contaminated with blood and/or body fluids, you must clean the camera before disinfecting it.

To clean the camera, follow these steps:

1 Dampen (**not soaked**) a lint-free cloth with lukewarm water.

2 Remove the blood and/or body fluids with the dampened lint-free cloth.

## Disinfecting the Camera

Before each patient, the camera must be thoroughly disinfected.

To adequately disinfect the camera, follow the disinfectant manufacturer's instructions for the appropriate contact time.



**Important: If the camera is visibly soiled, it must be thoroughly cleaned prior to disinfecting, see "Cleaning the Camera" .**

To disinfect the camera, follow these steps:

1 Remove the protective sheath.

2 Remove all visible soil (see "Cleaning the Camera" ).

3 Dampen (**not soaked**) a lint-free cloth with 0.525% sodium hypochlorite or use a 1/10 dilution of 5.25% sodium hypochlorite or household bleach (for example, if in the USA, use GLUCO-CHLOR wipes).

4 Wipe thoroughly all surfaces of the camera.



**WARNING: Do not rinse.**

5 Allow to dry in the open air for a minimum of 5 minutes.

# Visually Inspecting the Camera for Damage

Visually inspect the camera for signs of deterioration, such as the buttons or the cable. If damage is noted, do not use the camera and contact your representative.

# 9 Technical Specifications

## Manufacturer

Carestream Health, Inc.
150 Verona Street
Rochester,
New York - USA 14608

## Model

CS 1200 Wired

## Technical Specifications

| Components | Technical Specifications |
|---|---|
| **Camera** | |
| Sensor technology | • 1/2.5 inch CMOS<br>• Effective pixels: 5 M |
| Resolution | • image: 1024 x 768 pixels<br>• Video: 640 x 480 pixels |
| Lighting | • White LEDs |
| FOV | 80° |
| Focus range | 3 mm - 25 mm |
| Connecting cable length | 3 m |
| Connection: Computer | USB 2.0 high speed |
| Connection: Monitor | S-Video; AV |
| Output impedance | 75 ohm |
| Dimension | 207 x 29x 22 mm |
| Weight of camera without cable | 60 g |
| **Environment** | |
| Operating temperature | +5 ~ +40 °C |
| Transportation and storage temperature | -10–60 °C |
| Operating relative humidity | 10 ~ 85% RH |
| Transportation and storage relative humidity | 10 ~ 95% RH |
| Operating atmospheric pressure | 700-1060 hPa |
| Transportation and storage atmospheric pressure | 600-1060 hPa |

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For more information, visit: **www.carestreamdental.com**
To give documentation feedback, visit: **www.carestreamdental.com/documentationfeedback**

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