

Optimizing the ISG-Z100 HD for image quality and efficiency.

Preliminary Guide

This guide is intended to provide concise instructions for obtaining best photo-image quality and operational efficiency. It's highly recommended that new operators review all steps while becoming familiar with the camera and the listed procedures.

The Z100 HD is very easy to use but procedures differ from other cameras. Adherence to these procedures will result in consistent high quality captures with minimal operator effort.

Please verify that software has been installed and the Camera has been attach to the PC as per instructions located in the user manual.

Starting the Application:

1. Click on **START-->ISG-Z100 HD -> ISG-Z100 HD** and start the application.
If the user interface does not appear please consult the trouble shooting section of this guide.
2. The ISG interface will appear

Front Panel Controls:

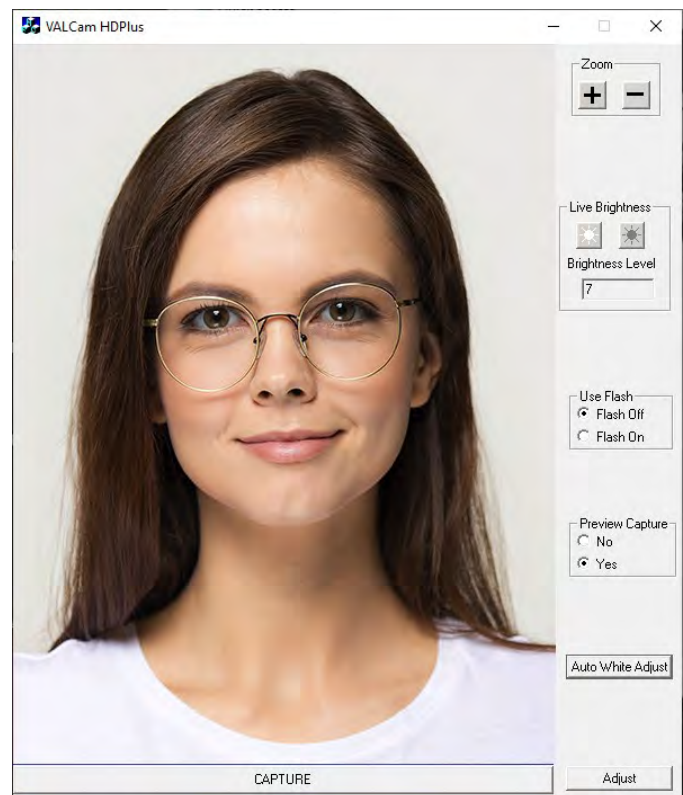
The following is a rundown of the main user interface of the ISG application.

Zoom Controls:

The ISG-Z100 HD uses a very high quality 25-1 Zoom lens. Subject distances can vary from 18 inches to 25 plus feet without any loss of image quality.

Using Zoom Controls with Mouse:

1. Place mouse cursor on the "+" button and depress and the camera will zoom in, release the left mouse button and the zoom will stop
2. Place the mouse cursor on the "-" button and depress and the camera will zoom out, release the left mouse button and the zoom will stop
3. To slow down zoom speed depress and hold down the "Shift" key while simultaneously depressing the "+" or "-" buttons
Slowing down the zoom speed can be very helpful for accurately setting zoom position.
4. To increase zoom speed depress and hold down the "Ctrl" key while simultaneously depressing the "+" or "-" buttons



Using Zoom Controls with the Keyboard:

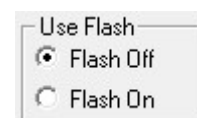
1. Press the “+” button next to the numeric keypad on your keyboard and the camera will zoom in, release the “+” button and the zoom will stop
2. Press the “-” button next to the numeric keypad on your keyboard and the camera will zoom out, release the “-” button and the zoom will stop
3. To slow down zoom speed depress and hold down the “Shift” key while simultaneously depressing the “+” or “-” buttons
Slowing down the zoom speed can be very helpful for accurately setting zoom position.
4. To increase zoom speed depress and hold down the “Ctrl” key while simultaneously depressing the “+” or “-” buttons

Brightness Controls:

Proper adjustment of camera brightness is crucial for optimal image quality. If this control is not set properly photo image quality will suffer.

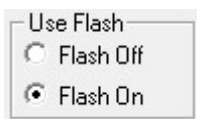
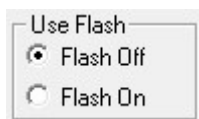
Adjusting Live Image Brightness:

1. Verify that Flash off radio button is selected.
2. Click the “Bright Sun” button to increase brightness.
The live preview image brightness level will increase. The “Brightness Level” numerical indicator will also increase incrementally as you click.
3. Click the “Dark Sun” button to decrease brightness.
As with above the Live Preview image will darken. The “Brightness Level” numerical indicator will also decrease incrementally as you click.



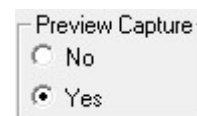
Use Flash:

This control is used to switch in between Live Capture and Flash Capture modes of the Camera. Specific information for taking captures in both modes is located later in this document.



Preview Capture:

This control provides you with the option of reviewing a capture before saving it. If you have selected the “Yes” radio button, after you take a capture you will be presented with a screen that displays the capture. That screen will also give you the ability to fine tune the image and the option to go ahead and save that capture or discard it. If you have selected the “No” radio button, then after you take a capture the camera will instantly save the image. It is recommended to keep the Preview Capture on.



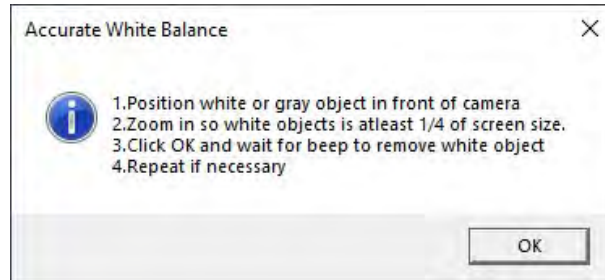
Note: The type of capture saved is controlled in the “Capture Type” Tab of the Adjust Box.

Auto White Adjust Button:

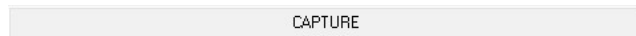


Pressing this button performs an Automatic White Balance adjustment as well as turns off the camera's constant auto-white function.

1. Press the Auto White Button
2. A prompt will appear with Instructions.
3. Once you have put something white to take up most of the screen click the "OK" button
4. You will hear a tone, this is the indication that the adjustment has been completed
5. You may have to repeat this 2-3 times to achieve optimal white balance.



Capture Button:



This button initiates a photo capture.

Adjust Button:



This button brings up our adjustment menu in a separate window, there are many adjustments over multiple tabs which are discussed in the User Manual.

Taking a Capture:

Live (non-Flash) Capture Mode:

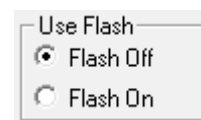
In many environments the "Live Capture" (No Flash) will deliver high quality results. The ISG-Z100 HD has outstanding low light performance and may provide quality captures in environments previously thought to require a flash. We recommend to always try live capture mode when evaluating a new capture location.

Advantages of Live Capture Mode:

- Preview image will be exactly the same as the captured image (What You See Is What You Get)
- Color Balance and Brightness changes will be viewable immediately in the Live Display

Set the Live Brightness Settings

- Verify that zoom is set properly and the subject is centered
- Verify that the "Flash Off" radio button is selected.
- Adjust the "Bright Sun" and "Dark Sun" buttons for optimal image illumination



Note: Each click of these buttons will make the image slightly brighter or darker. Click as many times as needed. See examples below.

- If the “Bright Sun” and “Dark Sun” buttons are not working verify that the “Flash Off” radio button is selected in the Use Flash box



Set Correctly



Too Bright



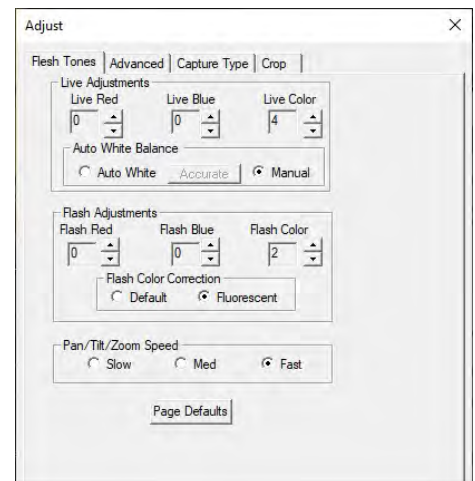
Too Dark



Optimizing Live Color Balance

The live preview/capture color balance can be fine-tuned for a very accurate color balance. When these changes are made the setting are locked and will not change even when the system is power down.

- Do not use the Red and Blue scroll bars that appear in the main dialogue box after a live capture. These should be kept in the default positions and preferably locked. See section on locking settings later in this document.
- Click the Adjust button.
- Click the Manual radio button
- Adjust the Red control up until the image is too red.
- Adjust the Red control down until the image doesn't have enough red.
- Set Red control mid-way between these settings.
- Repeat these setting with the Blue control.
- Iterate between the Blue and Red controls until the color balance is optimized
- Live Color will adjust the color intensity or saturation of the image. Use of this control might be helpful to compensate for Printer irregularities.
- To reset factory defaults for these settings click the “**Page Default**” button



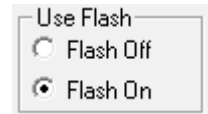
Flash Capture Mode:

“Flash Capture” Mode might be useful in demanding low-light environments. Unlike “Live Capture” Mode the results are not “What You See Is What You Get”. The Live Preview and the captured image might differ in color balance and brightness.

The flash capture intensity must be set when the camera is being used for the first time in a new environment.

Setting up the Flash

- The flash settings must be adjusted the first time that the flash is used in a new environment, generally this feature will not need to be changed once set
- Click the Flash On radio button in the Main Dialogue box of the application
- Make sure that the subject is centered and the Zoom is properly set
- Estimate the distance between the subject and the camera
- Use the “Bright Sun” and “Dark Sun” buttons in the Flash Brightness box to set the distance
- Click the “Capture” button
- The captured image might be either too bright or too dark



Flash Too Bright



Flash Set Correctly



Flash Too Dark



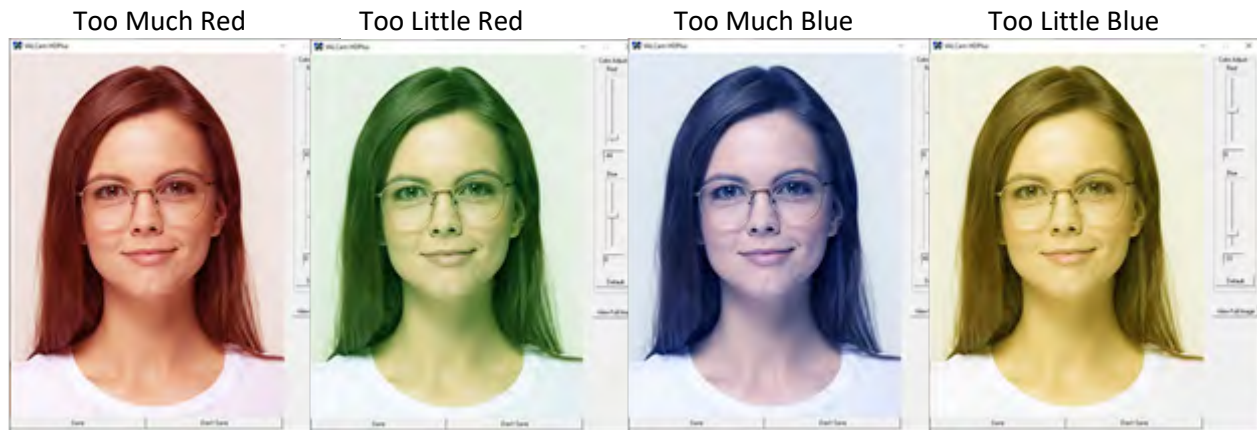
- Click the “Don’t Save” button
- Use the Flash Brightness buttons to adjust the intensity of the flash, if the image is too dark click the “Bright Sun” button and vice-versa. Then click the “Capture” button again
- Note: You should leave at least 6 seconds in between taking flash captures for the flash to fully recharge
- Repeat until flash brightness is optimized
- Once the flash is set no adjustments are required between uses as the settings are saved and stored locally

Fine tuning the color balance of a Flash Captured Image

The color balance of the captured image can be easily adjusted in real time if needed. Any color changes will be applied to additional captures without further adjustment. These changes are remembered between sessions and applied after the PC is rebooted.

Immediate Color Adjustment

- Quick color adjustments are available to easily control the color balance of the captured image
- After the capture, the image is displayed with the “Save” and “Don’t Save” buttons
- Red and Blue sliders appears next to the captured image
- To adjust the image increase the “Red” slider until the image appears too Red. Then decrease “Red” until the image appears to be lacking in Red, then place the slider in the middle of that range
- Repeat this procedure with the “Blue” slider
- Iterate this procedure between both color bars until you have optimized the image



Note: Yellow skin tones indicates too little blue, so add blue to correct

- When finished, click the “Save” button
- Color adjustment is complete and the settings will be saved and remembered in between captures and sessions

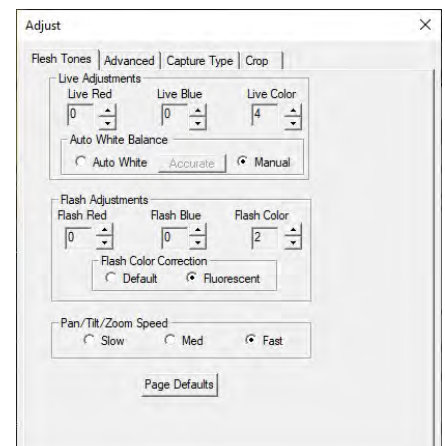
Pre-Capture Color Adjustments

Additional flash color adjustments are available from the “Flesh Tone” tab of the “Adjust” dialogue box. Generally these will not need to be used as the adjustments described above are sufficient.

Keep in mind that these adjustments are not visible in the live preview window and will only be seen after the capture is taken and displayed.

- Click the Adjust button.
- The Flash Red and Flash Blue controls can be adjusted up and down to either add or subtract the colors saturation, but it is highly recommended to use the red and blue sliders discussed in the previous section
- Flash Color up and down buttons will adjust the color intensity or color saturation of the image. Often times card printers might have issues if color intensity is too great. This control is useful for lowering color intensity to compensate for printer irregularities.

Note: A new capture must be taken to view changes made.



Universal Settings:

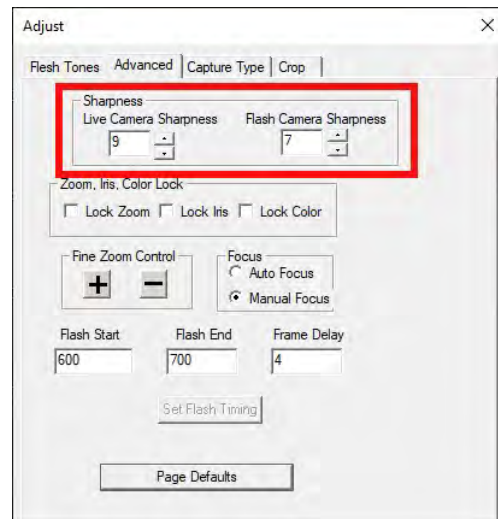
The following section covers some settings that apply to both Capture Modes.

Sharpness Control:

Sharpness or the clarity of detail in a photo is important for capturing texture and definition. Overly sharp images appear harsh or grainy.

Adjusting Sharpness:

1. Click on the “Adjust” Button
2. Select the “Advanced” tab
3. Separate controls exist for Live (non-flash) mode and Flash Capture mode. Each control adjusts the sharpness for its own capture type.
4. For Live Capture- Adjust the Sharpness setting and the results will be immediately viewable in the Live Preview Window
For Flash Capture- Adjust the Sharpness Setting and take a capture the Capture Preview will reflect the settings. Adjust and retake captures as needed to fine tune.



Sharpness Too Low



Sharpness Default



Sharpness Too High



Using Auto Cropping:

Auto Cropping is optional but is highly recommended.
Auto Cropping offers a number of advantages:

- Eliminates the need to crop the image in software.
- Previews image exactly as it will appear on the ID badge.

Implemented Auto Cropping

- Click the "Adjust" button on the ISG window. Select the Crop tab. See figure 1.
- Select the Aspect Ratio that corresponds to the photo box on your card design
Note: This is usually 3/4 or 4/5. Do not use the Custom selection unless you have a non-typical need.
- When the crop selection is made the live preview will conform to the selection. See Figures 2 & 3.

Figure 1

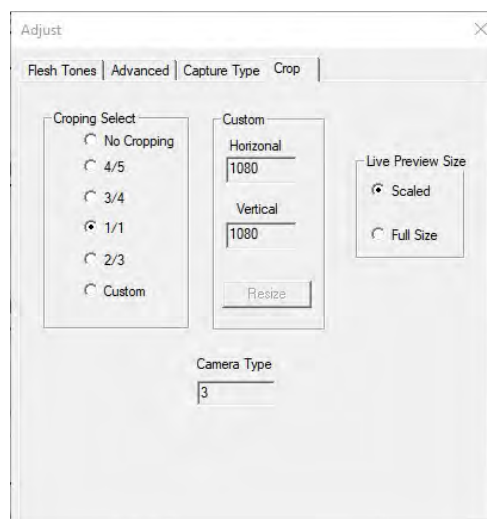


Figure 2: 3/4 Cropping

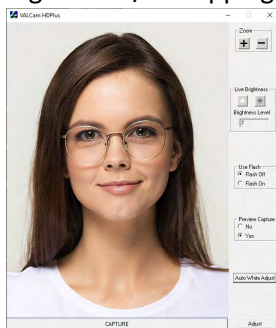


Figure 3: 1/1 Cropping

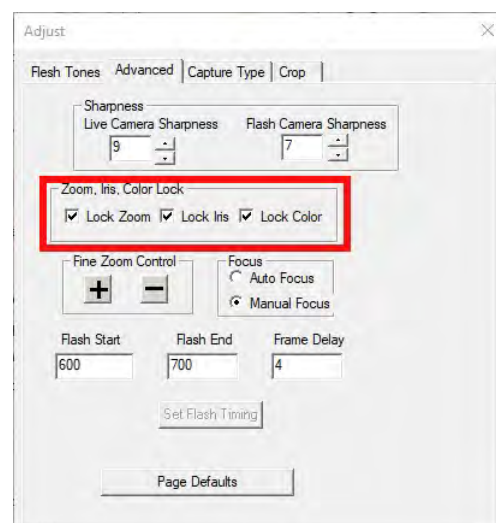


Locking Settings

The Brightness, Zoom, and Color settings can be locked to prevent operators from changing these values from the main user interface. This can prevent operators from changing settings that have previously been optimized by an administrator.



- Click the "Adjust" button
- Once the Adjust box pop up appears click on the "Advance" tab
- Locate the "Lock Zoom", "Lock Iris", and "Lock Color" check boxes
- If desired, a password can be set in the registry to force a security check when trying to open the "Adjust" dialog box



Preliminary Guide for the Face Finding/Auto-Cropping Feature

The following information is provided with instructions on using the new Face Finding/Auto-Cropping feature. Using this feature a single capture can be taken of subjects of varying heights to obtain a cropped and centered head and shoulders shot without adjusting the camera. This eliminates the need to crop the capture in your badging application. In addition the capture will be in the correct aspect ratio of your badging application.

To Use the Face Finding Feature:

1. Position a subject and make sure they are looking straight at the camera.
2. Click the “Auto Crop” selection box, this will turn on the Face Finding feature and it will immediately begin searching for a face.

Note: If there is no subject in front of the camera or the subject is too far from the camera and it is unable to detect a face you will get a message indicating “Face Not Found”. To resolve this verify that the subject is facing the camera and/or the camera might need to be manually zoomed in to enlarge the face so it can be detected.



3. Click on the “Set Zoom” button – If the camera detects a face it will automatically zoom in or out until the pre-selected eye distance is met.
4. If you click the “Set Zoom” button and the camera and it is unable to detect a face you will get a message indicating “Face Not Found”. To resolve this verify that the subject is facing the camera and/or the camera might need to be manually zoomed in to enlarge the face so it can be detected. After zooming in slightly click on the “Set Zoom” button again and the camera will search for the face again.
5. Click Capture and the Software will simultaneously take a capture and Crop out the subject's face according to settings.

Note: For best results center the subject

Adjusting Face Finding and Crop Feature Settings

1. Click on the “Adjust” button



2. Select the “Crop” tab

3. The “Cropping Select” box controls the aspect ratio of the preview image as well as the final cropped capture. This aspect ratio should be selected to match the aspect ratio of the picture box in your badging software.

Note: For best results this setting should match the picture box on you card design in most cases this will be the ¾ (.75) aspect ratio.

4. The “Auto Crop/Face Find” box

“Eye Distance”: Controls how far into a face the camera zooms. The software measures the pixels between the eyes of the subject so the higher the pixel count the more zoomed in an image. The presets are 120,150 and 180 pixels.

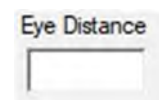
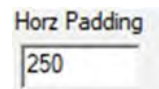
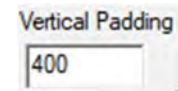
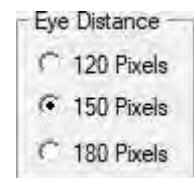
Note: A setting of 120 is the camera default, this setting will accommodate a majority of subject sizes without adjusting the camera.

“Vertical Padding”: Controls the amount of space between the top of the subjects head and the top of the final cropped capture. We have preset these values for the different “Eye Distance” options as a guide, but note these can easily be changed by the operator for specific needs. Any changes are remembered by the system and will be used until they are changed again.

Note: If this value is too low part of the subjects head maybe cropped or not enough space will be left between the top of the frame and the subjects head. In this case the value should be increased. We have provided sample prints of captures taken with different Vertical and Horizontal Padding at the end of this document to demonstrate these differences.

“Horz Padding”: Controls the amount of space from the subject to the side of the capture. This is preset to a value of 250 for all “Eye Distance” settings but is customizable and remembered for each setting. If the padding value is set too low the size of the crop box will be reduced horizontal and vertically.

“Eye Distance (non-selectable)”: This is a display of the software measured pixel distance between the subject’s eyes. The software has an acceptable variance of +/- 5% of the selected “Eye Distance” this is the software’s exact measurement.



“Default Settings” Button: Returns all of the adjustable values to default presets.

Default Settings



Eye Distance 120 pixels
Vertical Padding 400
Horizontal Padding 250



Eye Distance 120 pixels
Vertical Padding 150
Horizontal Padding 250



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3. Click on the “Set Zoom” button – If the camera detects a face it will automatically zoom in or out until the pre-selected eye distance is met.
4. If you click the “Set Zoom” button and the camera and it is unable to detect a face you will get a message indicating “Face Not Found”. To resolve this verify that the subject is facing the camera and/or the camera might need to be manually zoomed in to enlarge the face so it can be detected. After zooming in slightly click on the “Set Zoom” button again and the camera will search for the face again.
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Adjusting Face Finding and Crop Feature Settings

1. Click on the “Adjust” button



2. Select the “Crop” tab

3. The “Cropping Select” box controls the aspect ratio of the preview image as well as the final cropped capture. This aspect ratio should be selected to match the aspect ratio of the picture box in your badging software.

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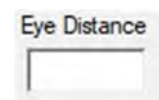
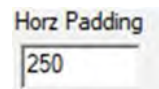
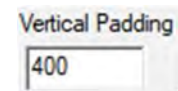
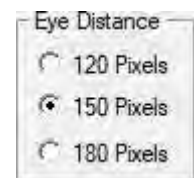
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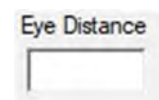
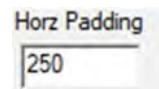
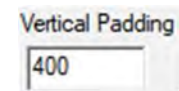
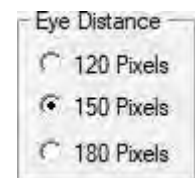
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2. Click the “Auto Crop” selection box, this will turn on the Face Finding feature and it will immediately begin searching for a face.

Note: If there is no subject in front of the camera or the subject is too far from the camera and it is unable to detect a face you will get a message indicating “Face Not Found”. To resolve this verify that the subject is facing the camera and/or the camera might need to be manually zoomed in to enlarge the face so it can be detected.



3. Click on the “Set Zoom” button – If the camera detects a face it will automatically zoom in or out until the pre-selected eye distance is met.
4. If you click the “Set Zoom” button and the camera and it is unable to detect a face you will get a message indicating “Face Not Found”. To resolve this verify that the subject is facing the camera and/or the camera might need to be manually zoomed in to enlarge the face so it can be detected. After zooming in slightly click on the “Set Zoom” button again and the camera will search for the face again.
5. Click Capture and the Software will simultaneously take a capture and Crop out the subject's face according to settings.

Note: For best results center the subject

Adjusting Face Finding and Crop Feature Settings

1. Click on the “Adjust” button



2. Select the “Crop” tab

3. The “Cropping Select” box controls the aspect ratio of the preview image as well as the final cropped capture. This aspect ratio should be selected to match the aspect ratio of the picture box in your badging software.

Note: For best results this setting should match the picture box on you card design in most cases this will be the ¾ (.75) aspect ratio.

4. The “Auto Crop/Face Find” box

“Eye Distance”: Controls how far into a face the camera zooms. The software measures the pixels between the eyes of the subject so the higher the pixel count the more zoomed in an image. The presets are 120,150 and 180 pixels.

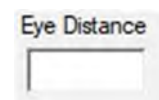
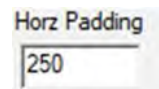
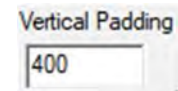
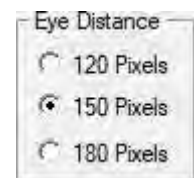
Note: A setting of 120 is the camera default, this setting will accommodate a majority of subject sizes without adjusting the camera.

“Vertical Padding”: Controls the amount of space between the top of the subjects head and the top of the final cropped capture. We have preset these values for the different “Eye Distance” options as a guide, but note these can easily be changed by the operator for specific needs. Any changes are remembered by the system and will be used until they are changed again.

Note: If this value is too low part of the subjects head maybe cropped or not enough space will be left between the top of the frame and the subjects head. In this case the value should be increased. We have provided sample prints of captures taken with different Vertical and Horizontal Padding at the end of this document to demonstrate these differences.

“Horz Padding”: Controls the amount of space from the subject to the side of the capture. This is preset to a value of 250 for all “Eye Distance” settings but is customizable and remembered for each setting. If the padding value is set too low the size of the crop box will be reduced horizontal and vertically.

“Eye Distance (non-selectable)”: This is a display of the software measured pixel distance between the subject’s eyes. The software has an acceptable variance of +/- 5% of the selected “Eye Distance” this is the software’s exact measurement.



“Default Settings” Button: Returns all of the adjustable values to default presets.

Default Settings



Eye Distance 120 pixels
Vertical Padding 400
Horizontal Padding 250



Eye Distance 120 pixels
Vertical Padding 150
Horizontal Padding 250



Eye Distance 120 pixels
Vertical Padding 400
Horizontal Padding 100

Preliminary Guide for the Face Finding/Auto-Cropping Feature

The following information is provided with instructions on using the new Face Finding/Auto-Cropping feature. Using this feature a single capture can be taken of subjects of varying heights to obtain a cropped and centered head and shoulders shot without adjusting the camera. This eliminates the need to crop the capture in your badging application. In addition the capture will be in the correct aspect ratio of your badging application.

To Use the Face Finding Feature:

1. Position a subject and make sure they are looking straight at the camera.
2. Click the “Auto Crop” selection box, this will turn on the Face Finding feature and it will immediately begin searching for a face.

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5. Click Capture and the Software will simultaneously take a capture and Crop out the subject's face according to settings.

Note: For best results center the subject

Adjusting Face Finding and Crop Feature Settings

1. Click on the “Adjust” button



2. Select the “Crop” tab

3. The “Cropping Select” box controls the aspect ratio of the preview image as well as the final cropped capture. This aspect ratio should be selected to match the aspect ratio of the picture box in your badging software.

Note: For best results this setting should match the picture box on you card design in most cases this will be the $\frac{3}{4}$ (.75) aspect ratio.

4. The “Auto Crop/Face Find” box

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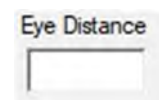
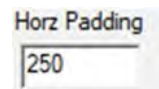
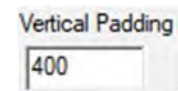
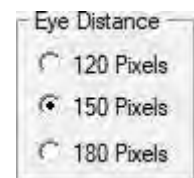
Note: A setting of 120 is the camera default, this setting will accommodate a majority of subject sizes without adjusting the camera.

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Default Settings



Eye Distance 120 pixels
Vertical Padding 400
Horizontal Padding 250



Eye Distance 120 pixels
Vertical Padding 150
Horizontal Padding 250



Eye Distance 120 pixels
Vertical Padding 400
Horizontal Padding 100

Preliminary Guide for the Face Finding/Auto-Cropping Feature

The following information is provided with instructions on using the new Face Finding/Auto-Cropping feature. Using this feature a single capture can be taken of subjects of varying heights to obtain a cropped and centered head and shoulders shot without adjusting the camera. This eliminates the need to crop the capture in your badging application. In addition the capture will be in the correct aspect ratio of your badging application.

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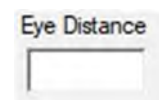
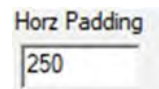
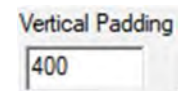
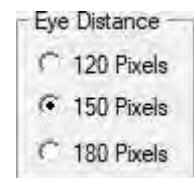
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