

Scanning Settings Help Manual

Foreword

The Microtek DocWizard EX scanning software is an application that is used on a computer operating system; it allows computers to obtain images from scanners or load local image files for viewing. To fully understand its functions and use them efficiently, please read the “Scanning Settings Help Manual” and the operation manual of the scanner equipment.

Copyright

Copyright©2023, Microtek. All rights reserved. Without the written permission of our company, no organization or individual may copy, transmit, reproduce, or store any part of this manual in any form, such as electronic, mechanical, electromagnetic, optical, chemical, artificial or other similar methods, in the index system, or translate into other languages.

Subject matters scanned with this product are protected by government laws and other regulations such as right of reproduction; customers should follow related laws and regulations.

Trademark

Microtek, FileScan, ScanWizard and DocWizard are registered trademarks of Microtek or its affiliates; other trademarks or registered trademarks belong to their original registered companies.

TM and the ® marks are non-exhaustive in this manual.

Statement

Images and instructions in this manual are for reference only; please subject to the software version that you actually use. The contents of this manual have been checked and confirmed repeatedly; however Microtek does not guarantee its accuracy, and reserves the right to modify its contents (software functions, operation methods, software and hardware, etc.) without prior notice. Including (but not limited to) the implied warranty of applicability for particular purposes. For more product information, please subject to our official website at www.microtek.com.

May 2023

Table of Contents

| | | |
|------|---|----|
| I. | Instructions before use | 1 |
| II. | Global | 1 |
| III. | Basic settings | 3 |
| | 1. Color mode | 4 |
| | 2. Paper size | 13 |
| | 3. Scan page | 17 |
| | 4. Resolution | 20 |
| IV. | Brightness | 22 |
| | 1. Brightness level | 22 |
| | 2. Contrast | 23 |
| | 3. Gamma value | 23 |
| | 4. Tone curve | 24 |
| V. | Image processing | 26 |
| | 1. Automatic correction | 26 |
| | 2. Image split | 26 |
| | 3. Remove black frame (including advanced parameter settings) | 27 |
| | 4. Penetration prevention | 29 |
| | 5. Perforation removal | 30 |
| VI. | Paper feed setting | 32 |
| | 1. Scan settings | 32 |
| | 2. Document direction | 34 |
| | 3. Detection switch | 35 |
| | 4. Hardware configuration | 38 |

I. Instructions before use

Please read the following explanations before use:

Global: Introduces the global function in the scan parameter settings dialog box.

Basic settings: Introduces the functions and settings of the scanner's basic parameters.

Brightness: Introduces the brightness/contrast/gamma settings of the scanner.

Image processing: Introduces image processing related functions and settings of the scanner.

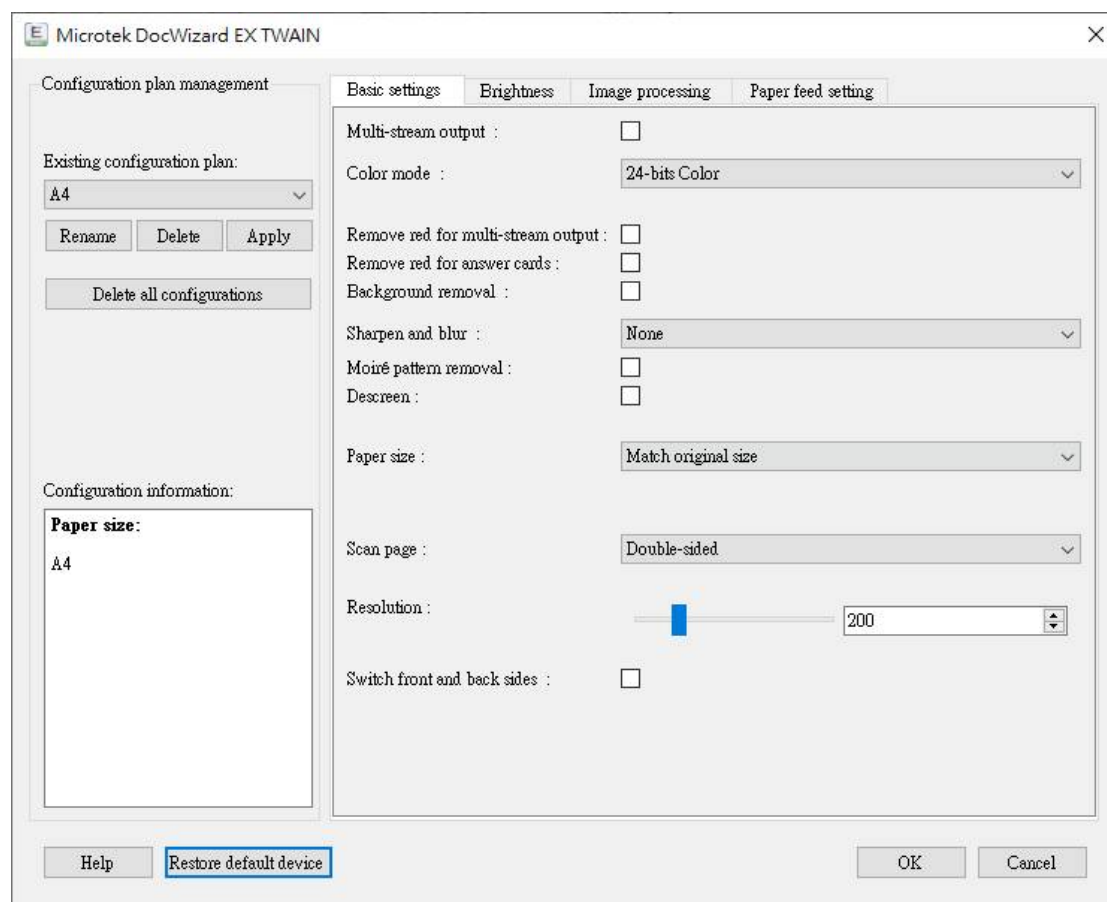
Paper feed setting: Introduces paper feed related functions and settings of the scanner.

Important information

- **Confirm that the scanner is connected to the computer correctly and that the cable between the scanner and computer is firmly connected; otherwise, unstable exceptions will occur. Please refer to the operation manual of the scanner for detailed information.**

II. Global

The user interface of the scanner's scan parameter setting dialog box is as follows:





Global functions are not affected by the currently selected tab.

Global function keys:

A. Help: Opens this help manual.

B. Restore default device: Restores all scan parameter settings on each tab to their default settings.

C. OK: Closes the dialog box and saves changed parameter configurations.

D. Cancel: Closes the dialog box and all parameter configurations changed this time will not be saved. Restores all parameter configurations to the configurations last saved.

Configuration plan management:

A. Existing configuration plan: Click to expand the list of configurations to switch saved user configurations.

B. Rename: Allows modifying the currently configured name.

C. Delete: Deletes the configuration currently used.

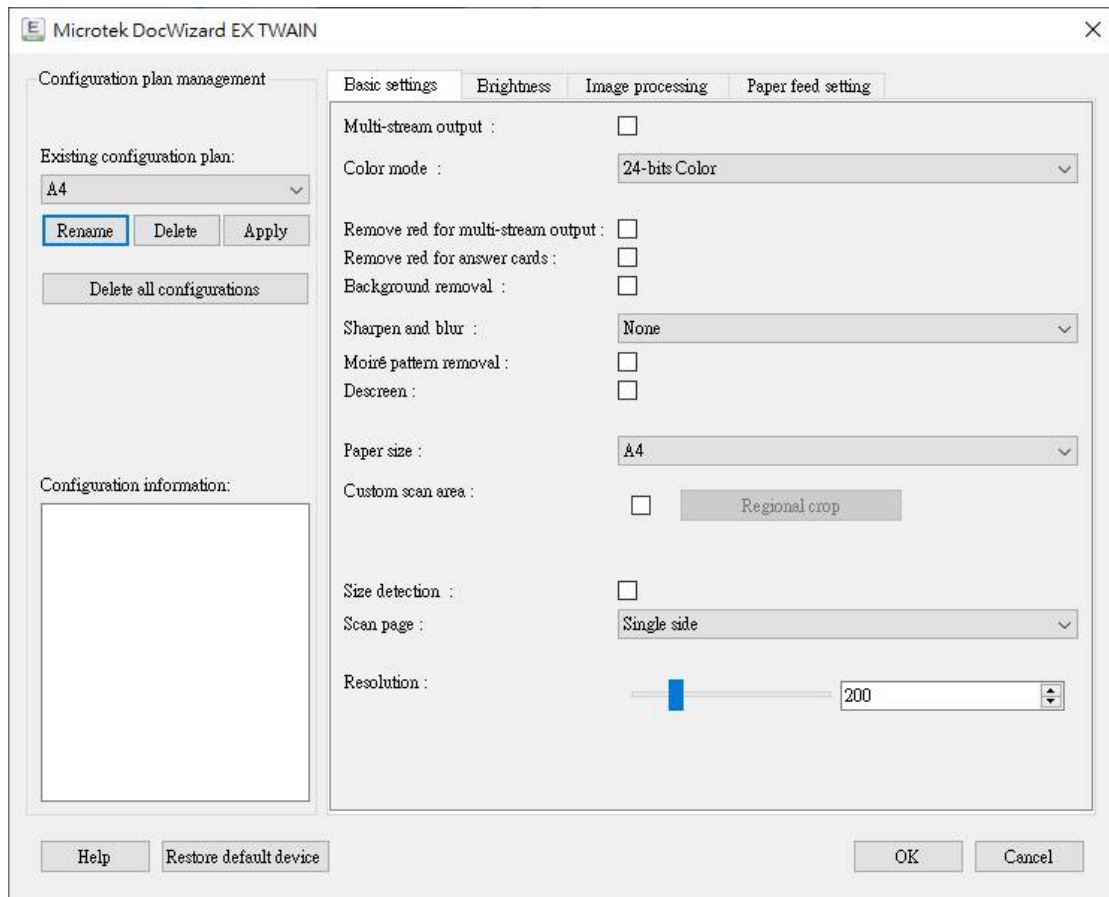
D. Apply: Apply the currently selected configuration to the scan parameters.

E. Delete all configurations: Deletes all saved configurations.

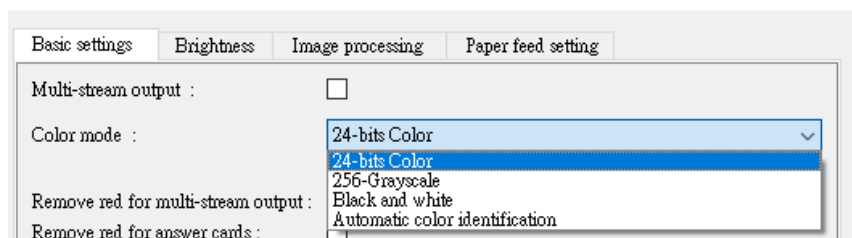
F. Configuration information: Displays the parameters with current configurations that are different from their default configurations.

III. Basic settings

The basic setting tabs include the four basic parameter options: **Color mode**, **Paper size**, **Scan page** and **Resolution**. There are also other options that may change or be forced on/off according to the basic parameters.



1. Color mode



Allows configuring the color of the document scanned by the scanner, which includes the four modes **24-bit color (default)**, **256 level grayscale**, **Black and white** and **Automatic color identification**.

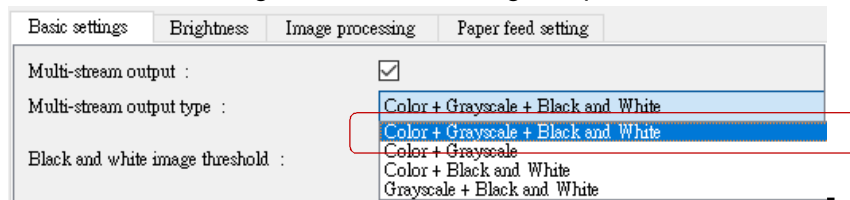
- **24-bit color:** Under this mode, the scanned document image is displayed in RGB three-channel colors.
- **256 level grayscale:** Under this mode, the scanned document image is displayed in 256 level single-channel grayscale.
- **Black and white:** Under this scale, the scanned document image is displayed as a binary image.
- **Automatic color identification:** Under this mode, the scanner will automatically identify and output the corresponding image according to the color situation of the document. Documents that contain color information will be outputted as color images; documents that only contain black and white information will be outputted as grayscale images.

The following functions may be enabled/disabled according to the color mode selected:

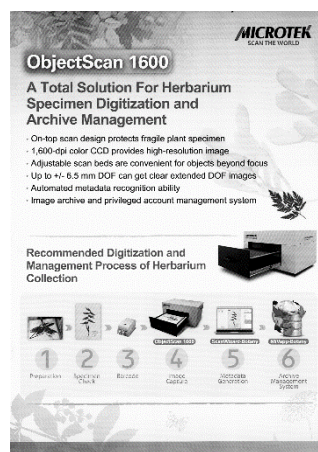
| Item | Function | 24-bit color | 256 level grayscale | Black and white | Automatic color identification |
|------|------------------------------------|--------------|---------------------|-----------------|--------------------------------|
| A | Multi-stream output | ON | OFF | OFF | OFF |
| B | Remove red for multi-stream output | ON | OFF | OFF | OFF |
| C | Remove red for answer cards | ON | OFF | OFF | OFF |
| D | Background removal | ON | OFF | OFF | OFF |
| E | Sharpen and blur | ON | ON | OFF | OFF |
| F | Moiré pattern removal | ON | ON | OFF | OFF |
| G | Descreen | ON | ON | OFF | OFF |
| H | Color removal and enhancement | OFF | ON | ON | OFF |
| I | Black and white image threshold | OFF | OFF | ON | OFF |

| | | | | | |
|---|--|-----|-----|----|-----|
| J | Black and white image inverse color output | OFF | OFF | ON | OFF |
| K | Black and white image noise optimization | OFF | OFF | ON | OFF |
| L | Error diffusion | OFF | OFF | ON | OFF |

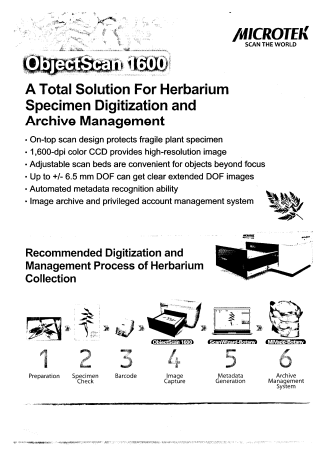
A. Multi-stream output: Converts the currently scanned color image into grayscale or black and white image for additional image output.



Color image



Grayscale image



B&W image

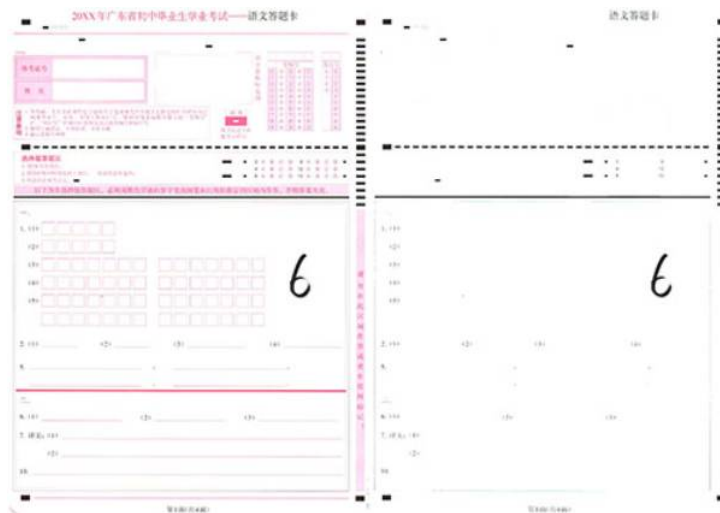
⚠ Note

If “Grayscale + Black and white” is selected for “Multi-stream output”, only the gray scale image and black and white image will be outputted at the end, and not the color image.

B. Remove red for multi-stream output (color image): Scans and outputs a document as 24-bit color image and a 256 level grayscale image with red removal effects simultaneously.



C. Remove red for answer cards (color image): Removes the red component in answer card images.



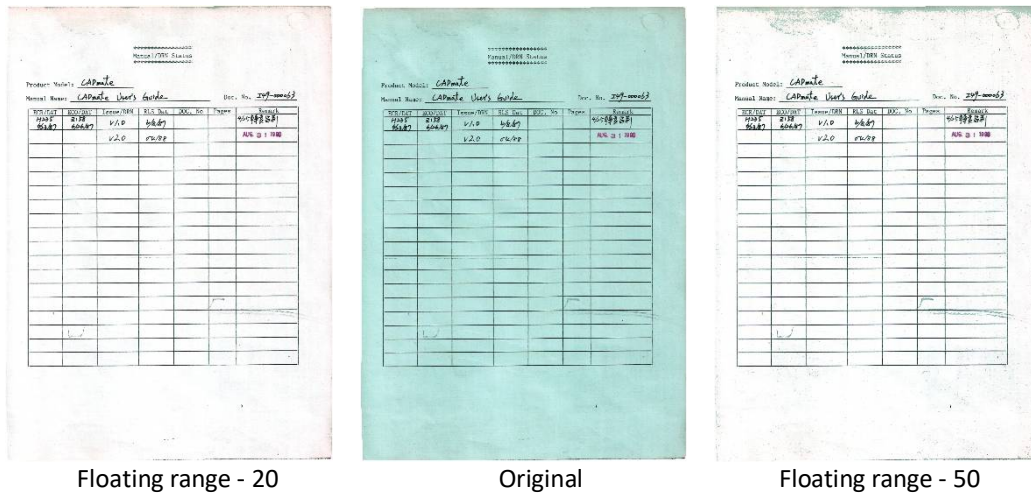
Description

Difference with the “**Color removal and enhancement > Remove red**” function:

* **Removal and enhancement > Remove red (grayscale/ b&w image):** Only removes the R channel component from the RGB information of pixels, and the output is a 256 level grayscale image or black and white image;

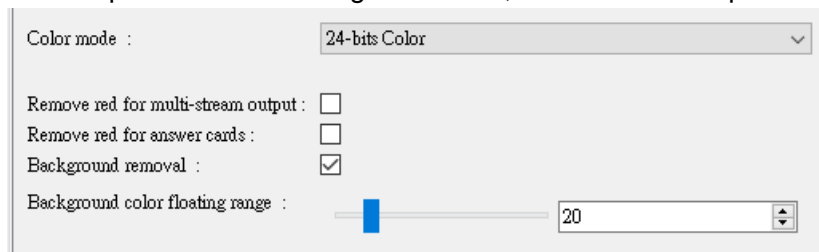
* **Remove red for answer cards (color image):** Determines the RGB information comprehensively; when determined as red, remove all RGB three-channels for the color here and output as 24-bit color image.

D. Background removal (color image): Removes large area background colors of document images or text backgrounds.



Description

Background color floating range: When the image processing algorithm confirms that a certain color is the background color of a document, the RGB value of this color will be used as the baseline to check the RGB values of all pixels. When the gray scale deviation of the three R, G and B channels of a certain pixel is within the background color floating range set, this pixel will be determined as a background color; otherwise, if the value of any of the R, G and B channels exceeded the background color floating range, determine this pixel as a non-background color, and it will not be processed.



Example

The image processing algorithm calculated the entire image and got RGB (230, 75, 128) as the baseline values of the document background color, and set the background color floating range as 20. When the RGB values of any pixel are within the range of R (210~250), G (55~95), B (108~148), it will be considered background color.

- For pixel 1 (RGB = 210, 55, 108), it was determined as a background color and will be processed;
- For pixel 2 (RGB = 250, 95, 148), it was determined as a background color and will be processed;
- For pixel 3 (RGB = 198, 75, 128), it was determined that its red component exceeded the background color range, and will not be processed;
- For pixel 4 (RGB = 254, 75, 128), it was determined that its red component exceeded the background color range, and will not be processed;

- For pixel 5 (RGB = 230, 47, 128), it was determined that its green component exceeded the background color range, and will not be processed;
- For pixel 6 (RGB = 230, 105, 128), it was determined that its green component exceeded the background color range, and will not be processed;
- For pixel 7 (RGB = 230, 75, 106), it was determined that its blue component exceeded the background color range, and will not be processed;
- For pixel 8 (RGB = 230, 75, 225), it was determined that its blue component exceeded the background color range, and will not be processed.

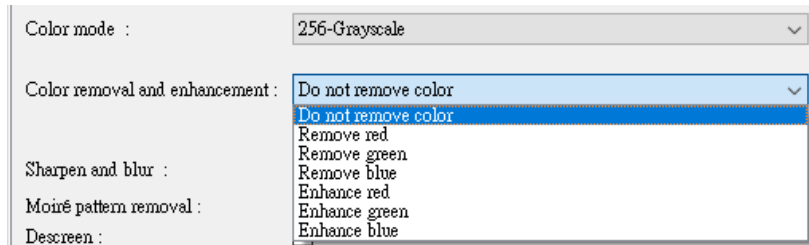
E. Sharpen and blur: Makes the image sharper or blurrier.



F. Moiré pattern removal: Removes the Moiré patterns on the image.

G. Descreen: Removes the Moiré effects on the image.

H. Color removal and enhancement (grayscale / b&w image): Removes or enhances the display of the specified color. This includes seven effects: **Do not remove color**, **Remove red**, **Remove green**, **Remove blue**, **Enhance red**, **Enhance green** and **Enhance blue**.



Effects of the color removal options:

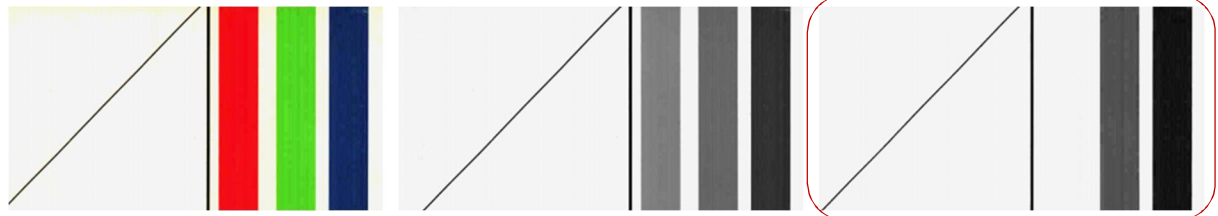
- Remove red: Reduces or eliminates the red component in images.
- Remove green: Reduces or eliminates the green component in images.
- Remove blue: Reduces or eliminates the blue component in images.

Effects of the enhance option:

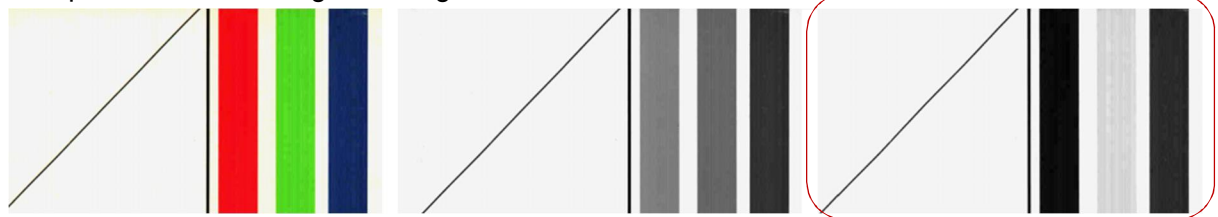
- Enhance red: Makes the red component in the image darker.
- Enhance green: Makes the green component in the image darker.
- Enhance blue: Makes the blue component in the image darker.

Example

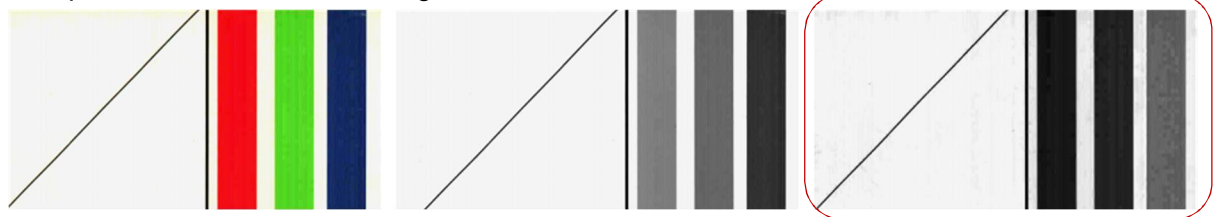
Comparison of Remove red image effects:



Comparison of Remove green image effects:



Comparison of Remove blue image effects:



Comparison of Enhance red image effects:



Comparison of Enhance green image effects:



Comparison of Enhance blue image effects:



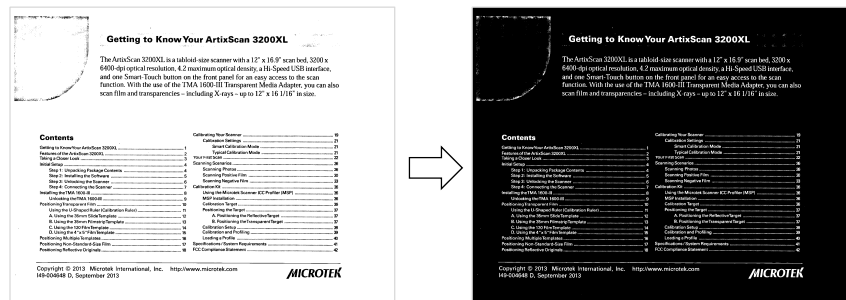
Description

The color removal function is a separate processing effect of the three channels R, G and B in color images; therefore, when processing non-pure colors, they cannot be removed completely. To achieve better color removal effects, there are higher requirements for the color purity of the scanned document image and the cleanliness of the paper.

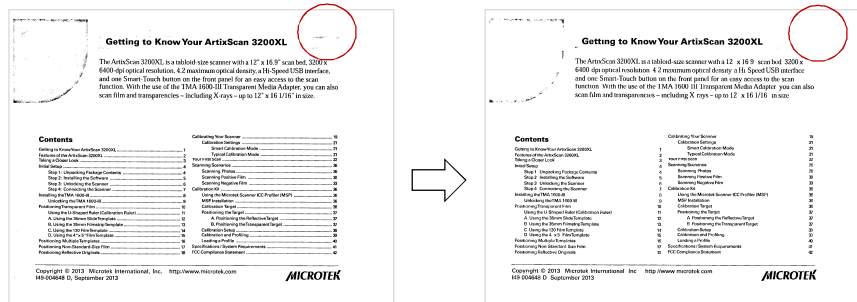
I. Black and white image threshold: Allows adjusting the gray scale determination threshold of black and white pixels when converting images to binary images. Pixels lower than the threshold value will be determined as black (which is 0), and pixels higher than the threshold value will be determined as white (which is 1).



J. Black and white image inverse color output: Interchanges the black and white colors in black and white binary images. (Mainly applied for pnm format image outputs)



K. Black and white noise optimization: Removes the noise that exists in images.



Description

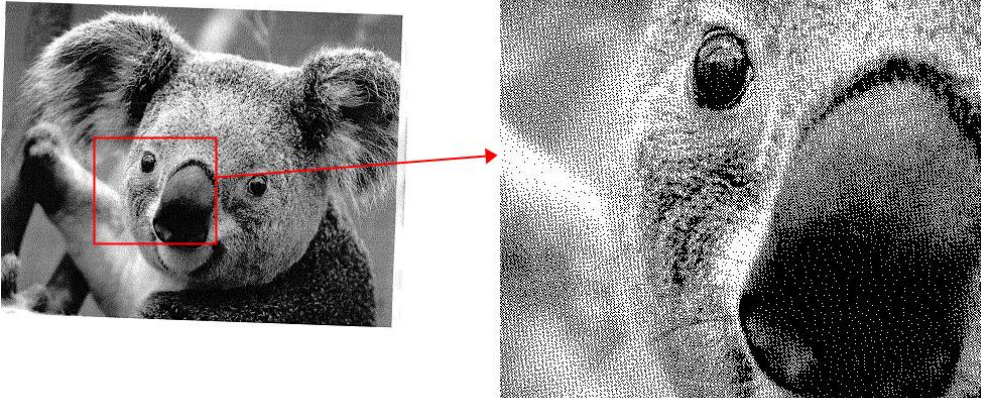
Noise optimization size: This means the number of connected black pixels. Removes the black isolated points with the number of connected points less than the value set on the entire image.

Example

Calculation of the number of connected noise points:



L. **Error diffusion:** Draws the document image using black points in the form of a dot matrix.



2. Paper size

Allows configuring the size of the document image scanned with the scanner.

 **Note**

Available paper size options may vary according to the different model devices.

There is a total of 23 configurable scanning sizes **for the A3 format scanner**; the actual paper length and width corresponding to each size is as shown in the table below:

| Selected size | Height (mm) | Width (mm) |
|---|--------------------------------|--------------------------------|
| A3 | 420 | 297 |
| B4 (8K) | 390 | 270 |
| A4 | 297 | 210 |
| A4 Landscape | 210 | 297 |
| B5 (16K) | 270 | 190 |
| B5 Landscape | 190 | 270 |
| A5 | 210 | 148 |
| A5 Landscape | 148 | 210 |
| A6 | 148 | 105 |
| A6 Landscape | 105 | 148 |
| B4 | 353 | 250 |
| B5 | 250 | 176 |
| B5 Landscape | 176 | 250 |
| B6 | 176 | 125 |
| B6 Landscape | 125 | 176 |
| Letter | 279 | 216 |
| Letter Landscape | 216 | 279 |
| Double Letter | 432 | 279 |
| LEGAL | 356 | 216 |
| Match original size (default) | Automatic detection (MAX: 420) | Automatic detection (MAX: 297) |
| *Automatic cropping at maximum scan size | Automatic detection (MAX: 840) | Automatic detection (MAX: 297) |
| *Maximum scan size | 840 | 297 |
| Triple test paper | 560 | 270 |

 **Note**

***The maximum height supported by “Automatic cropping at maximum scan size” and “Maximum scan size” for straight channel type departmental grade A3 high-speed scanners will vary depending on the scanner model.**

There is a total of 11 configurable scanning sizes **for the A4 format scanner**; the actual paper length and width corresponding to each size is as shown in the table below:

| Selected size | Height (mm) | Width (mm) |
|---|--------------------------------|--------------------------------|
| A4 | 297 | 210 |
| B5 (16K) | 270 | 190 |
| A5 | 210 | 148 |
| A6 | 148 | 105 |
| B5 | 250 | 176 |
| B6 | 176 | 125 |
| Letter | 279 | 216 |
| LEGAL | 356 | 216 |
| Match original size (default) | Automatic detection (MAX: 297) | Automatic detection (MAX: 210) |
| Automatic cropping at maximum scan size | Automatic detection (MAX: 445) | Automatic detection (MAX: 210) |
| Maximum scan size | 594 | 210 |

Description

When “Match original size” and “Automatic cropping at maximum scan size” is selected, the software will automatically detect the edges of the paper document fed into the scanner, and output the image according to the actual size of the paper.

Important

The “Maximum scan size” and “Automatic cropping at maximum scan size” are special modes enabled specifically for professional users; the structure of some model scanners is not suitable for stacking and automatic batch feeding of long documents.

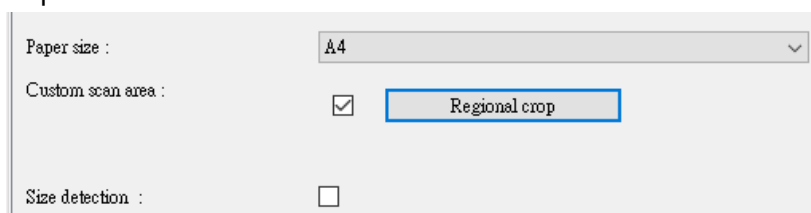
If you are a professional user:

- Please make sure that the paper does not deviate too much in the horizontal direction during the feeding process of long documents, otherwise the document may be damaged.
- When you use “Maximum scan size” and “Automatic cropping at maximum scan size”, if too many scanner settings are selected, scanning may become abnormal. When this occurs, please scan by using one or several of the following methods: lower the resolution, use gray scale or black and white color modes, scan a single side, or cancel the selection of image processing effects.

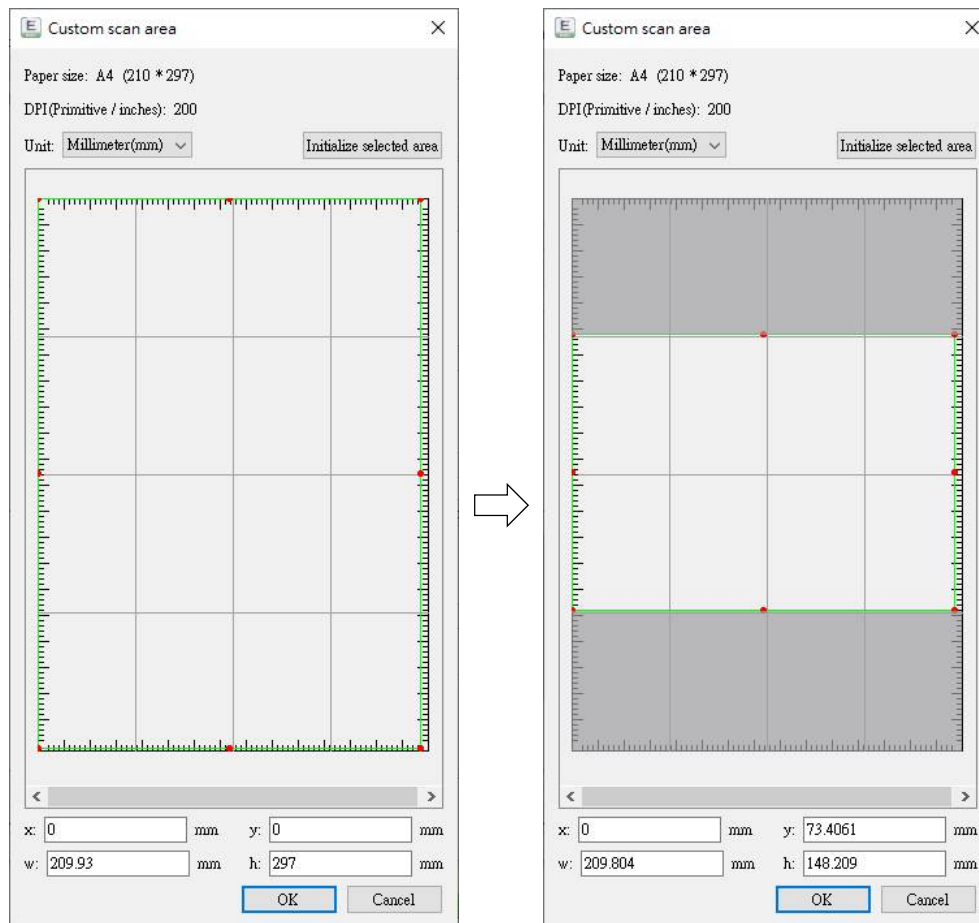
The following functions may be enabled/disabled according to the paper size selected:

| Function | Match original size | Automatic cropping at maximum scan size | Maximum scan size | Triple test paper | Others |
|------------------|---------------------|---|-------------------|-------------------|--------|
| Custom scan area | OFF | OFF | ON | ON | ON |
| Size detection | OFF | OFF | OFF | OFF | ON |

A. Custom scan area: When the size selected is a fixed format size, additional regional cropping can be performed based on the current size to customize the area of the output image.



Click the “Regional crop” button to open the custom scan area window:

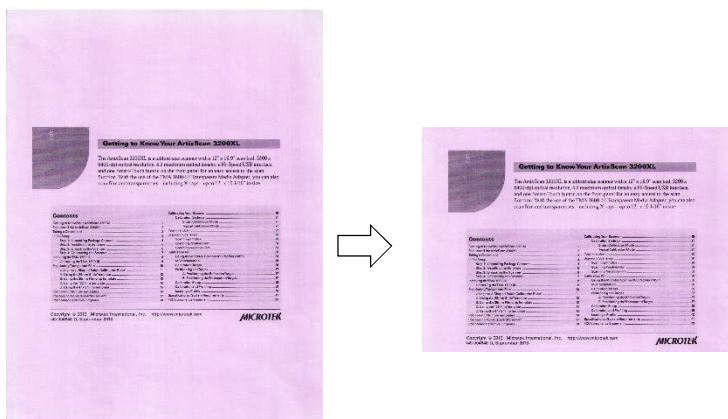


The unit used for area adjustment can be selected; three units are supported: millimeter, inch and pixel.

The range of the area to crop can be adjusted by dragging the crop frame manually; the crop area can also be confirmed by editing data in the input frame below:

x, y: The coordinates of the starting vertex position of the crop area; it represents the relative position of the distance from the vertex at the top-left corner of the crop area to the vertex at the top-left corner of the current paper size;

w, h: The width and height of the crop area.

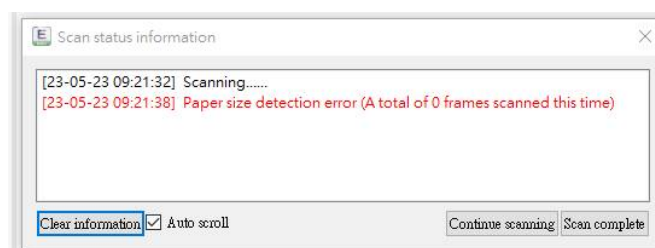


B. Size detection: When the size of the actual document to scan differs from the size of the “Paper size” set over a certain level, the software will show a prompt saying that the scan size is incorrect.

Paper size :

Custom scan area :

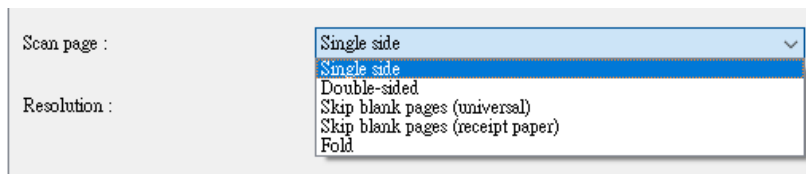
Size detection :



Note

The “Size detection” function may be unavailable based on the paper size selected: The size detection function is unavailable when the paper size is “Match original size”, “Automatic cropping at maximum scan size”, “Maximum scan size” or “Triple test paper”.

3. Scan page



The scanner has a total of five configurable page conditions that can be used to scan documents, including **Single side**, **Double-sided (default)**, **Skip blank pages (universal)**, **Skip blank pages (receipt paper)** and **“Fold”**.

A. Single side: Only scans the front side of the document.

Description

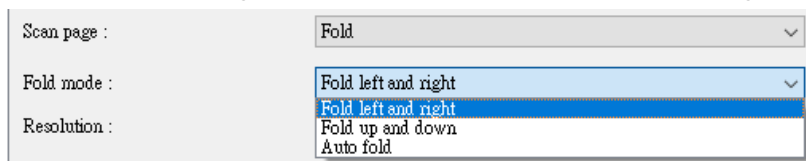
Paper is placed on the paper feed tray of the scanner, and the side facing down is the front. When Single side mode is selected, the front side is scanned.

B. Double-sided: Scans both the front and back sides of the document.

C. Skip blank pages (universal): Applicable for normal documents. The scanner scans both sides of the document automatically, and will determine whether contents exist on the pages automatically; blank pages with no contents will be discarded directly.

D. Skip blank pages (receipt paper): Applicable for receipt documents. The scanner scans both sides of the document automatically, and will determine whether contents exist on the pages automatically; blank pages with no contents will be discarded directly.

E. Fold: Applicable for scanning documents that are larger than the maximum size of the scanner. The scanner will scan both sides of the document automatically, and stitch the front and back images of the document into a complete image for output.



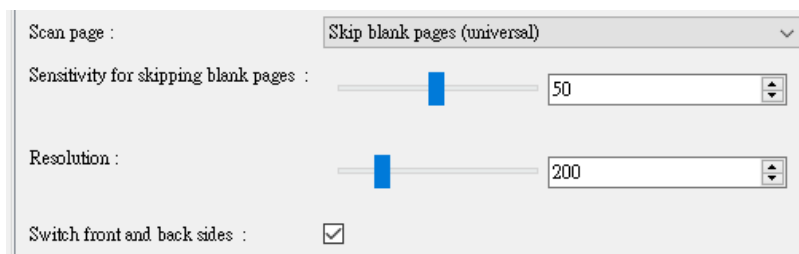
Description

The folding direction of the paper and the stitching methods are shown below:



The following functions may be enabled/disabled according to the scan page selected:

| Function | Single side | Double-sided | Skip blank pages (universal/receipt paper) | Fold |
|--------------------------------------|-------------|--------------|--|------|
| Sensitivity for skipping blank pages | OFF | OFF | ON | OFF |
| Switch front and back sides | OFF | ON | ON | ON |
| Fold mode | OFF | OFF | OFF | ON |
| Image split | ON | ON | ON | OFF |
| Automatic correction | ON | ON | ON | OFF |



A. Sensitivity for skipping blank pages: Allows adjusting the software's strength for determining blank pages. The larger the value, the more easily the image will be determined as a blank page and skipped.

B. Switch front and back sides: Using this option will switch the order in which the front and back side images of the document scanned are outputted.

Example

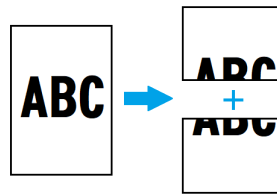
The front side of the document is marked as “_f” and the back side of the document is marked as “_b”. If three documents were scanned continuously, the order of the image output is: 1_f, 1_b, 2_f, 2_b, 3_f, 3_b.

When “Switch front and back sides” is selected, the order of the image output is changed to: 1_b, 1_f, 2_b, 2_f, 3_b, 3_f.

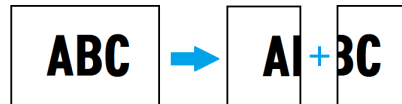
C. Fold mode: Allows selecting the splicing direction of the folded file. If “Auto fold” is selected, the driver will determine the length and width of the outputted image automatically, and use the long side as the folding line to splice images.

D. Image split: Each image scanned is split into two independent images. This function will automatically determine whether the image should be split horizontally or vertically according to the length and width of the size selected.

Processing method for vertical documents:



Processing method for horizontal documents:



Description

- When a "Landscape/Horizontal" size is selected for the "Paper size" option, the processing method for horizontal documents will be applied automatically; processing method for vertical documents will be applied automatically for all other fixed format sizes.
- When automatic detection related sizes are selected for the "Paper size" option, the system will first identify the size of the document fed, and then compare the length and width of the document to automatically determine whether to apply the processing method for horizontal document or vertical documents.

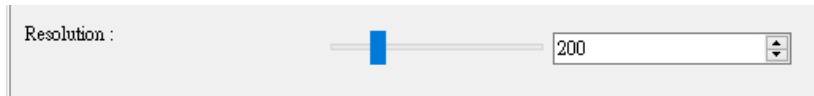
E. Automatic correction: Automatically detects the skew condition of the paper, and automatically adjusts the outputted image to the horizontal and vertical state.



Before

After

4. Resolution



Allows setting the scanner's resolution for the output image of the scanned document; settable ranges are **1~600** dpi. Default 200 dpi.

Take the A3 paper size for example. The impacts of resolutions on images are as shown in the table below:

| Selected resolution | Number of pixels in the vertical direction | Number of pixels in the horizontal direction |
|---------------------|--|--|
| 100 | 1653 | 1169 |
| 150 | 2480 | 1753 |
| 200 | 3307 | 2338 |
| 240 | 3968 | 2806 |
| 300 | 4960 | 3507 |

The size of the image resolution affects the maximum clarity of the image. Please select higher resolution modes when scanning fine objects.

Example

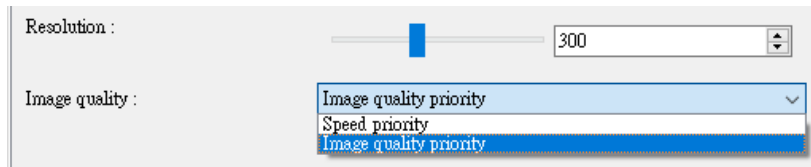
Font zoom display under 400 DPI:



Font zoom display under 200 DPI:



Image quality: When a high resolution mode is selected (300 DPI or more), the image quality can be selected.

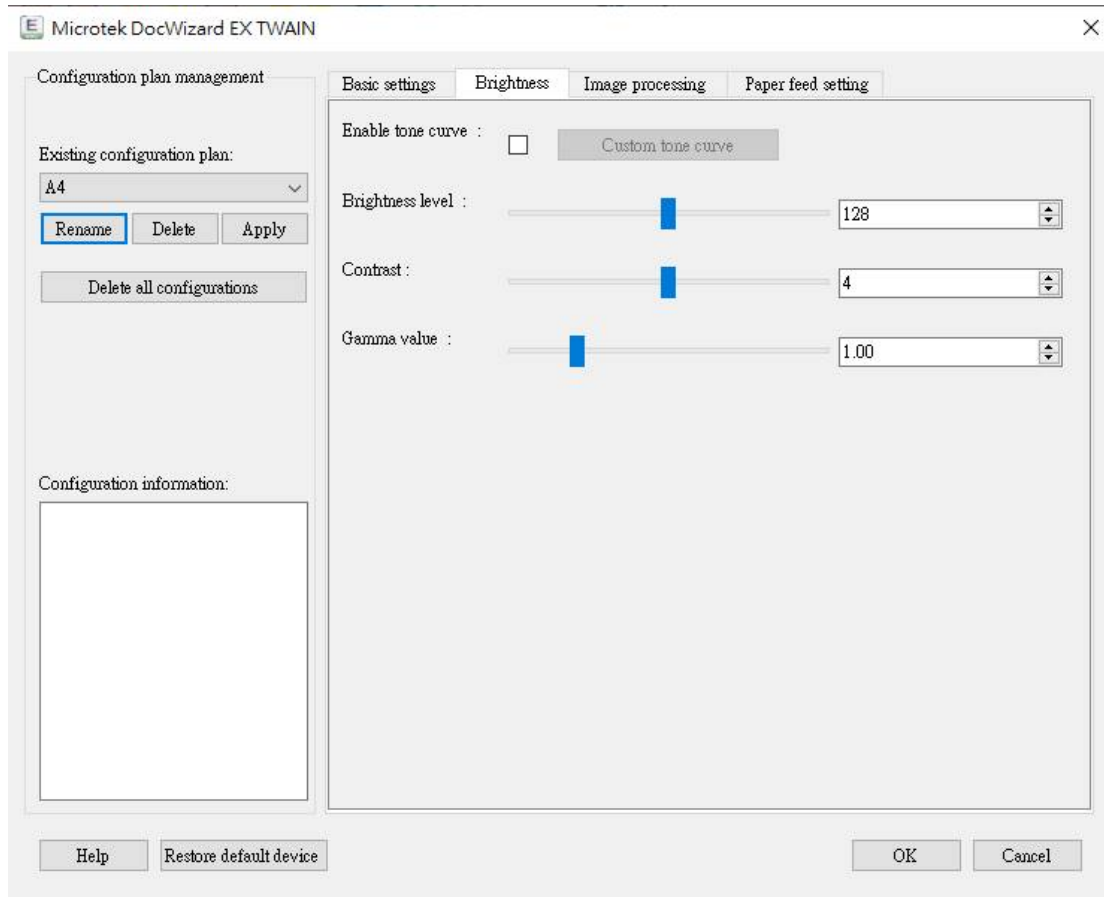


Description

- When “Speed priority” is selected, the scanner will scan at its original speed and the original image quality is kept for the scanned image.
- When “Image quality priority” is selected, the scanner will scan at low speed, and the scanned image will have high definition image quality.

IV. Brightness

The brightness tab includes four parameter options: Brightness value, contrast, gamma value and tone curve.



1. Brightness level

Use this option to configure the brightness of the document image scanned with the scanner.

Adjustment range: 1~255

Default value: 128

Adjustment method:

- Use the mouse to drag the slide in the center;
- Input numbers in the value frame using the keyboard;
- Click the up and down arrows to the right side of the value frame using the mouse;

The brightness affects how light or dark the image is. The lower the brightness, the darker the image; the higher the brightness, the lighter the image.

2. Contrast

Use this option to configure the contrast of the document image scanned with the scanner.

Adjustment range: 1~7

Default value: 4

Adjustment method:

- Use the mouse to drag the slide in the center;
- Input numbers in the value frame using the keyboard;
- Click the up and down arrows to the right side of the value frame using the mouse;

Contrast affects how dark and light the image is in places with dark and light colors. The lower the contrast, the closer the dark and light parts of the image will be, and the easier it is to expose highlights and dark details; the higher the contrast, the darker the dark parts and the lighter the light parts of the image will be, and the more easily it is to lose highlights and dark details.

3. Gamma value

Use this option to configure the gamma value of the document image scanned with the scanner.

Adjustment range: 0.01~5.00

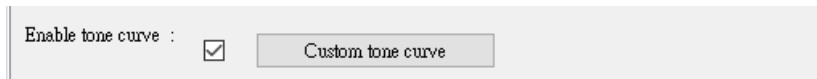
Default value: 1.00

Adjustment method:

- Use the mouse to drag the slide in the center;
- Input numbers in the value frame using the keyboard;
- Click the up and down arrows to the right side of the value frame using the mouse;

The gamma value can adjust the light and dark levels of the image, showing the acceleration of changes in different light and dark pixels. The smaller the gamma value, the darker the overall image, and the closer the light and dark parts will be; the higher the gamma value, the brighter the overall image will be, the level at which the light parts become lighter will be faster than the dark parts becoming lighter as the value increases.

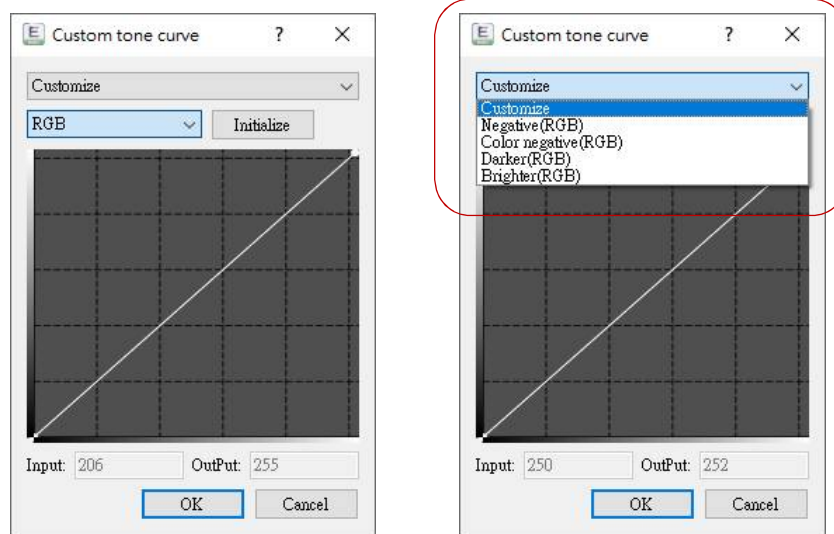
4. Tone curve



Use this option to use a visual curve to configure the brightness and color components of the image.

When this function is enabled, the brightness, contrast and gamma value functions will become invalid automatically.

Check “Enable tone curve” and then click the “Custom tone curve” button to open the tone curve window:

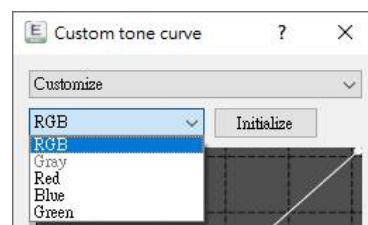


You can select the default curve or customize the curve.

When customize curve is selected, the left mouse button can be used in the curve window to increase control points; drag the control points the change the form of the curve.

Description

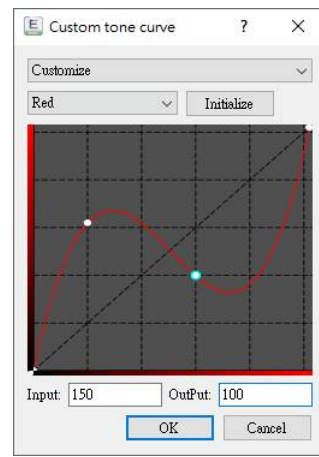
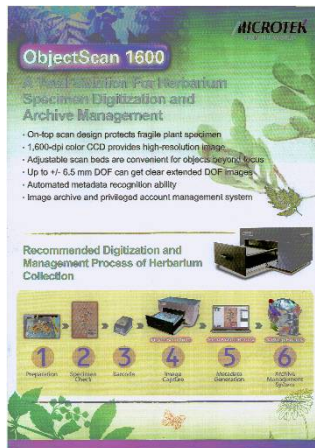
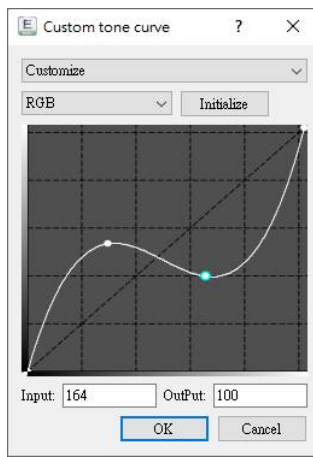
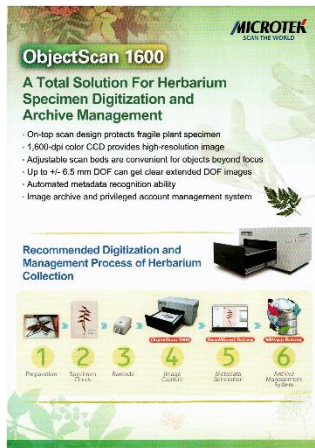
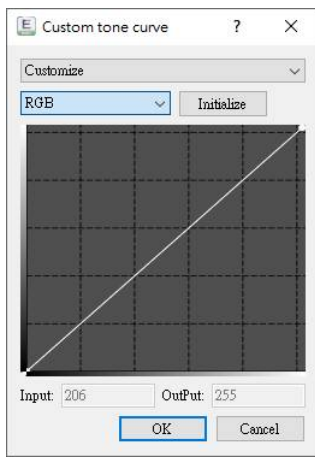
You can select the curve that corresponds to the color to make adjustments:



- RGB: In a color image, the three color components red, green and blue change synchronously according to the same curve; it is effective under color mode.
- Gray: In grayscale images, the gray scale changes according to the curve; it is

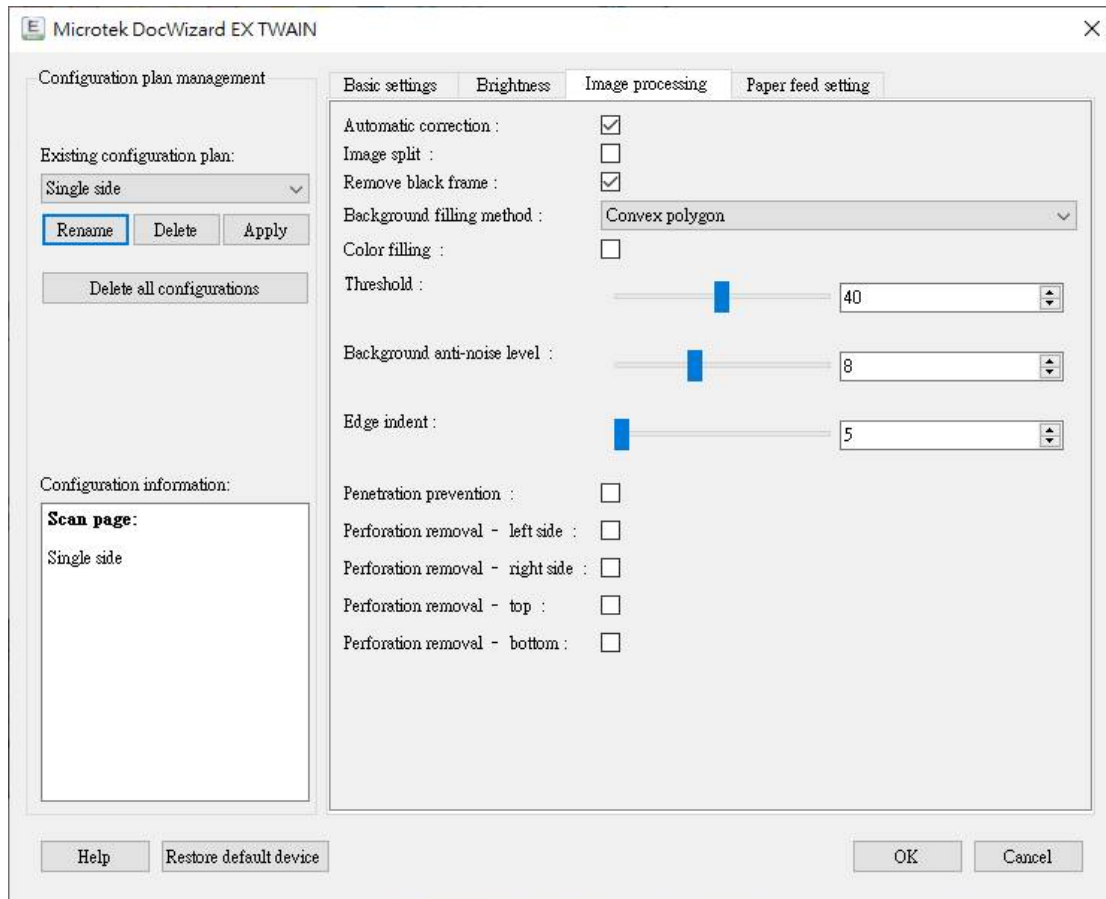
effective under grayscale mode.

- Red: In color images, the red component changes according to the curve; it is effective under color mode.
- Blue: In color images, the blue component changes according to the curve; it is effective under color mode.
- Green: In color images, the green component changes according to the curve; it is effective under color mode.



V. Image processing

The image processing tab has five parameter options, including: **Automatic correction**, **Image splitting**, **Remove black frame (including advanced parameter settings)**, **Penetration prevention** and **Perforation removal**.



1. Automatic correction

Refer to Chapter [“III. Basic settings > 3. Scan page”](#) for related introductions.

2. Image split

Refer to Chapter [“III. Basic settings > 3. Scan page”](#) for related introductions.

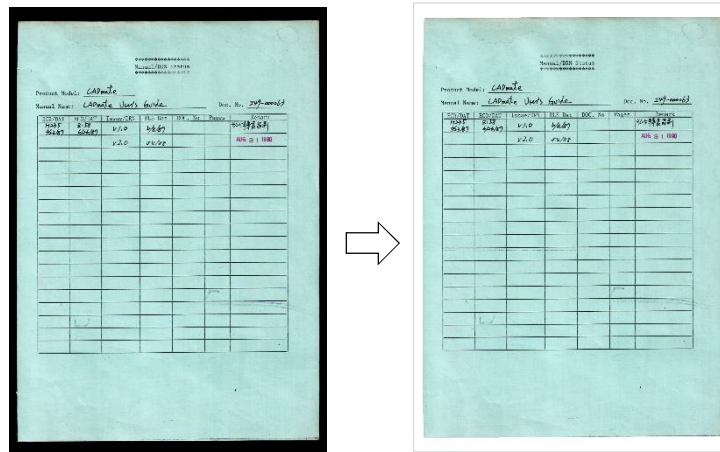
3. Remove black frame (including advanced parameter settings)

Remove black frame :

Background filling method : Convex polygon

Color filling :

Removes the black background parts outside the edge of the paper, and fill the removed areas with white.



Advanced parameter settings:

Affects all processing effects involved in finding the edge of the paper in image processing, including Automatic size in Paper size, Remove black frame and Automatic correction, etc.

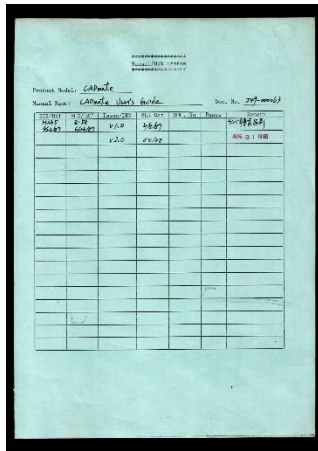
Important

It is recommended that non-professional users to set and use the default values; there is no need to change the Advanced setting parameters to avoid imaging anomalies.

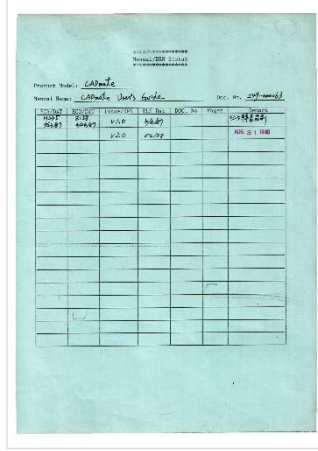
A. Background filling method: Represents the filling method for the background color of documents with irregular edges, as shown in the figure below:



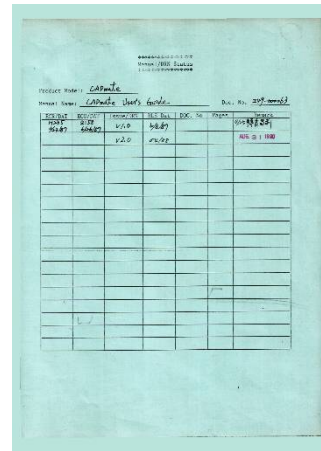
B. Color filling: The black frame areas are filled with pure white by default. When this option is selected, the software will determine the background color of the document automatically and fill the black frame areas with this color.



Original (black)



Unchecked (white)

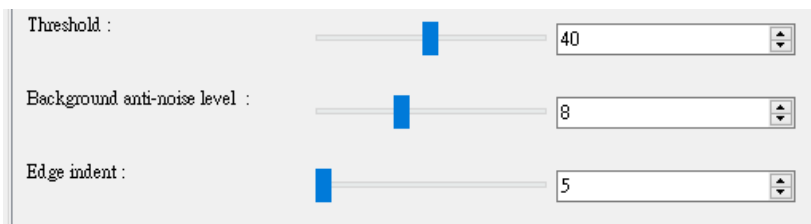


Checked (color)

C. Threshold: Represents the grayscale difference between the background and the contents of the document. The closer the gray scale of the background and the background color of the document, the smaller this value needs to be set. The default value is 40.

D. Background anti-noise level: Represents the tolerable width of abnormal variegated stripes that exist in the background. This value can be increased appropriately when the background is not clean enough. The default value is 8.

E. Edge indent: Represents the degree of intrusion into the edge of the document when Remove black frame fills the background color automatically. The larger the value, the more content is lost at the edges of the document. The default value is 5.



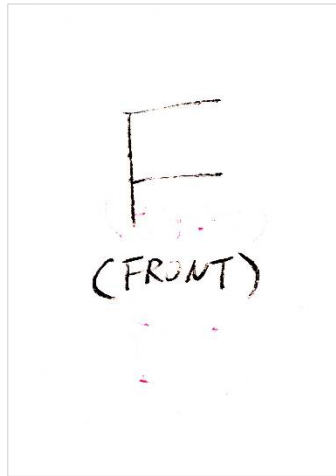
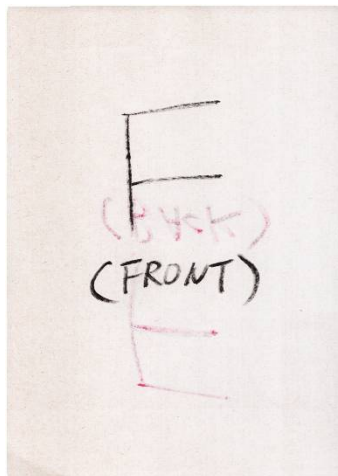
4. Penetration prevention

Removes or lightens image contents that penetrate from the back of the paper to the front of the paper.

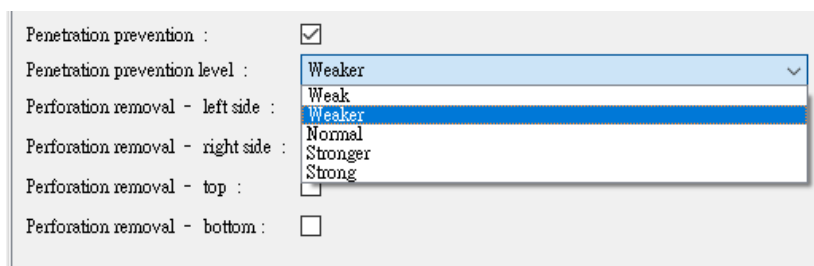


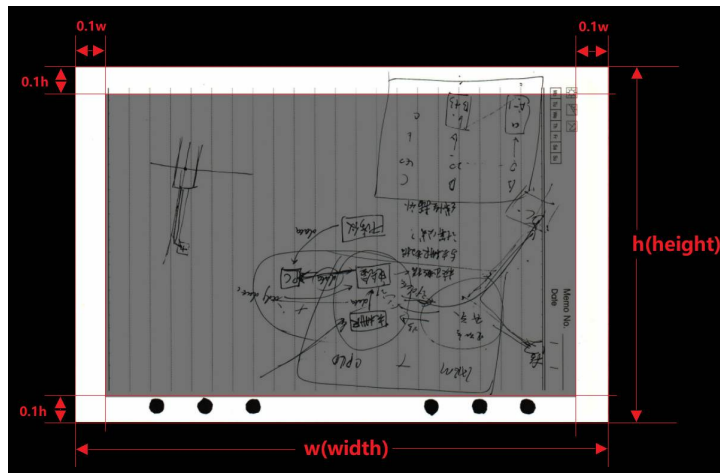
Unchecked

Checked



There are five strengths that can be selected for Penetration prevention; the processing strength increases sequentially: Weaker, Weaker, Normal, Stronger, Strong





Schematic diagram of the detection range when Perforation removal is enabled for all four sides and the search ranges are all set as 0.10

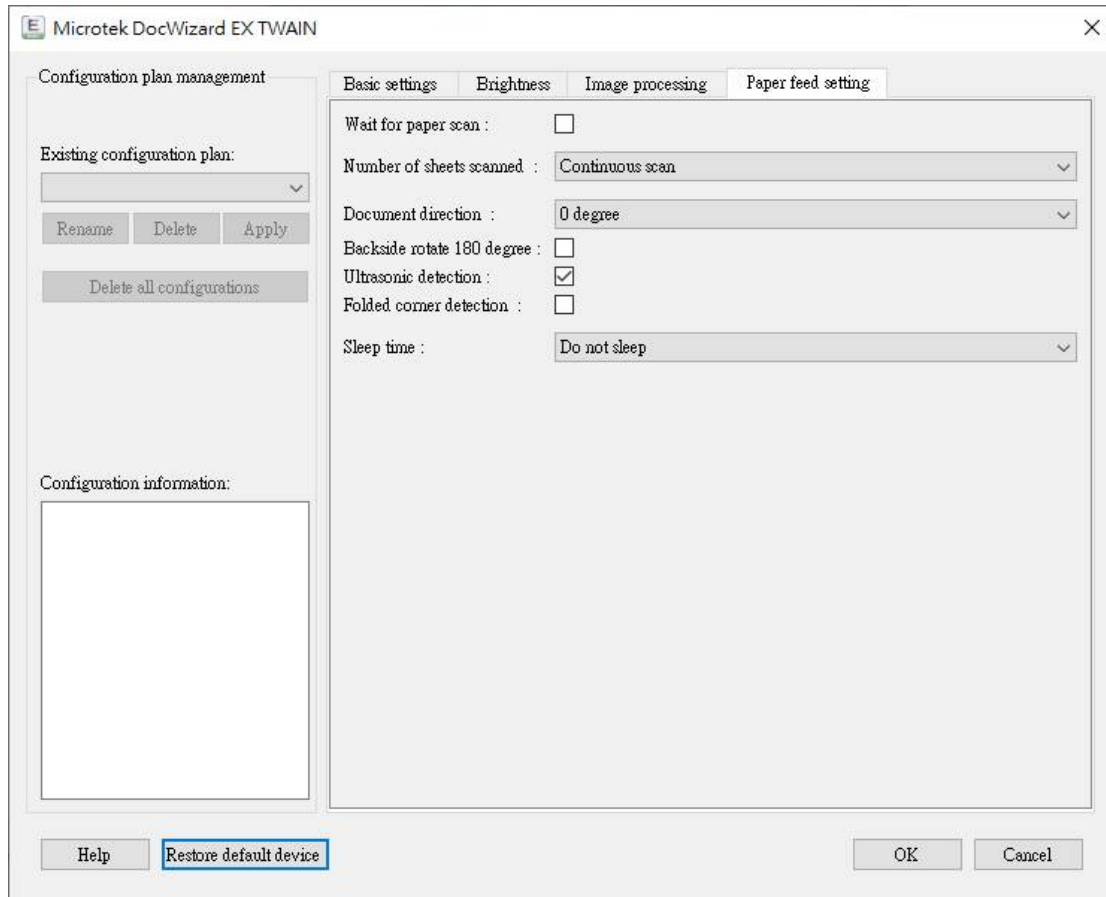
- If the perforation search range is set as 0.50, it means to search within the range from that side to the midline position of the paper along the direction of that side. If Perforation removal is enabled in all four directions and the search ranges are all set to 0.50, it means Perforation removal will be performed for the entire format.

| | |
|--|-------------------------------------|
| Perforation removal - left side : | <input checked="" type="checkbox"/> |
| Format ratio of perforation search range on the left side : | <input type="text" value="0.10"/> |
| Perforation removal - right side : | <input checked="" type="checkbox"/> |
| Format ratio of perforation search range on the right side : | <input type="text" value="0.10"/> |
| Perforation removal - top : | <input checked="" type="checkbox"/> |
| Format ratio of perforation search range on the top : | <input type="text" value="0.10"/> |
| Perforation removal - bottom : | <input checked="" type="checkbox"/> |
| Format ratio of perforation search range on the bottom : | <input type="text" value="0.10"/> |

- When the perforations are larger, the perforation may be determined as black images and not be eliminated.

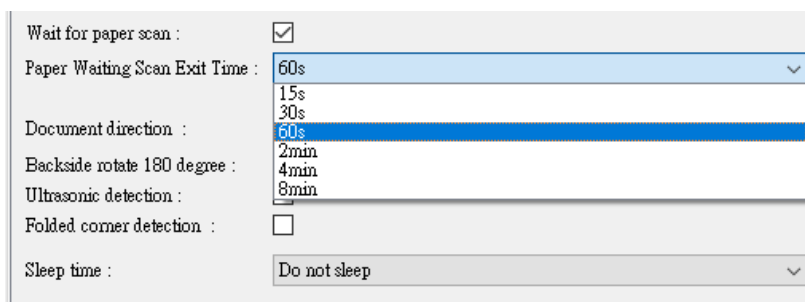
VI. Paper feed setting

The paper feed tab includes four types of options: **Scan settings**, **Document Direction**, **Detection switch** and **Hardware configuration**.

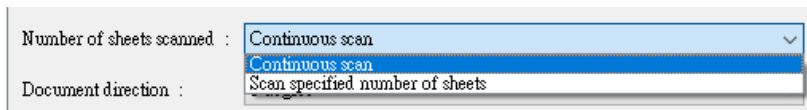


1. Scan settings

A. Waiting for paper scan: When enabled, except when scanning for the first time when Start needs to be clicked manually, the scanner will automatically detect whether documents were placed for subsequent scans for this scan task; scanning will start automatically when document placement is detected until the user clicks End manually.



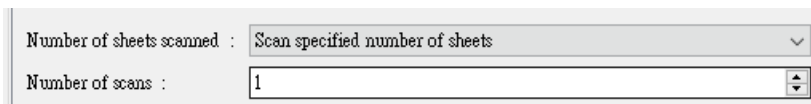
B. Number of sheets scanned: Configures the number of documents that the scanner will scan each time; there are two modes: **Continuous scan (default)** and **Scan a specified number of sheets**.



Number of sheets scanned : Continuous scan
Document direction : Scan specified number of sheets

a. Continuous scan: After the scanner starts scanning, it will automatically pick up the papers placed on the paper table and scan them until all of the papers have been scanned.

b. Scan specified number of sheets: After the scanner starts scanning, it will automatically pick up the papers placed on the paper table and scan them until the specified number of sheets of paper have been scanned.



Number of sheets scanned : Scan specified number of sheets
Number of scans : 1

- When this mode is used, the number of sheets of paper to scan this time needs to be set first.
- The number of papers can be increased or decreased by entering values in the value frame or by clicking the arrows to the right side of the value frame.
- Range for the number of sheets that can be set: 1~500 (varies according to the model)

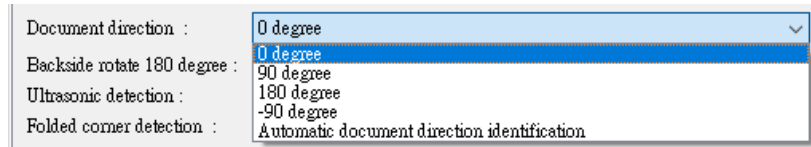
Description

The maximum range that can be set for the Number of sheets scanned is limited by the scanner model.

2. Document direction

Configures the direction which the scanner outputs the image of the scanned document. There is also an option to rotate the image on the back 180 degrees.

A. There are five options for Document direction: They are 0° (default), 90°, 180°, -90° and Automatic document direction identification.



Description

The “Automatic document direction identification” function is affected by the contents of the document; there may be rotation errors and failures. If the following situations exist for the document, please use a fixed rotation direction:

- Document contains large numbers of images or background colors.
- Document contains large numbers of lines and frames, such as table frames, etc.
- Some of the texts of the document are too small, use special fonts or contain large numbers of symbols, etc.
- Some of the texts in the document have different orientations.

B. Rotate the back 180°: When this function is selected, the output image of the back will be further rotated 180° on the basis of the rotation direction set for the document.



Note

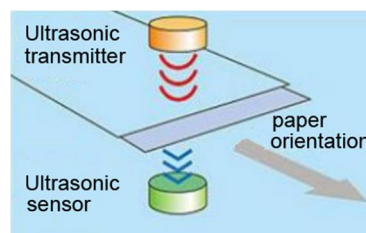
The Rotate the back 180° function will be disabled and become invalid automatically when the scan page is in “Single side” or “Fold” mode.

3. Detection switch

The scanner is equipped with three types of hardware sensor detection functions, which are: **Ultrasonic double sheet detection (Ultrasonic detection)**, **Binding detection** and **Skew detection**.



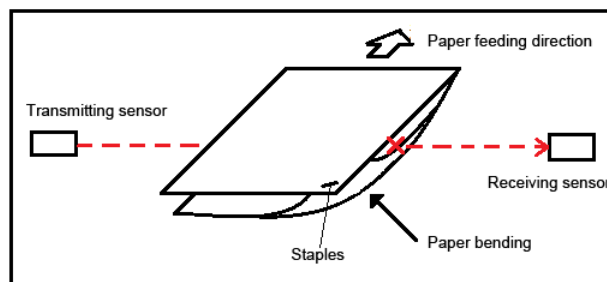
A. Ultrasonic double sheet detection: Use this option to enable/disable the scanner's Double sheet detection function. Enabled by default.



Ultrasonic double sheet detection uses ultrasonic waves to detect the number of papers in a single feed; it can effectively prevent feeding two sheets at once, and avoid file loss and missing pages.

Double image processing: Allows selecting whether to keep the images of double-sided paper detected.

B. Binding detection: Use this option to enable/disable the scanner's Binding detection function.



Binding detection uses a beam sensor to detect the flatness of the paper in a single feed; it can prevent the feeding of objects such as staples and tape that will cause papers to stick when fed, and avoid damaging documents.

C. Skew detection: Use this option to enable/disable the scanner's Skew detection function.

Skew detection uses a beam sensor to detect the skew level of papers in a single feed; it can effectively prevent feeding excessively skewed papers, and avoid damaging documents and missing images. The detection strength can be set for Skew detection, which is divided into five levels.

 **Description**

When “1” is selected, the device will issue warnings for papers with edges skewed 2° or more when fed, and stop picking up papers;

When “5” is selected, the device will issue warnings for papers with edges skewed 4° or more when fed, and stop picking up papers.

 **Note**

Some model scanners are not equipped with “Binding detection” and “Skew detection” sensors; therefore, they have no switches for these two types of detections.

The scanner is equipped with Folded corner detection; this function is a software detection function.

Folded corner detection: Use this option to enable/disable the scanner’s Folded corner detection function.



 **Description**

The detection strength can be set for Folded corner detection, meaning how sensitive the device is for folded corner sizes. The larger the value, the larger the tolerable folded corner of the paper, which also means the more difficult it is to detect folded corners.

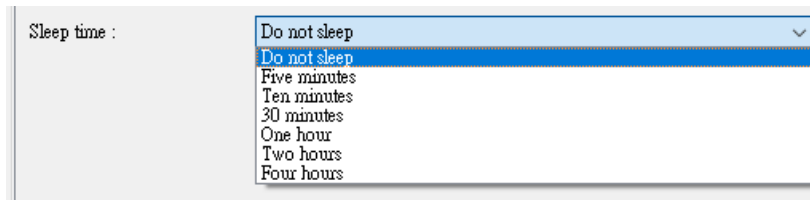
4. Hardware configuration

Configures the hardware parameters of the scanner; this includes the paper pickup strength setting and sleep time setting.

A. Paper separation strength: Configures the scanner's paper separation strength; it is divided into three levels: Strong, Normal and Weak.

Automatic paper pickup strength: When enabled, the scanner will automatically correct the appropriate paper pickup strength according to the paper pickup situation of the current several scanning batches.

B. Sleep time: Configures the scanner's sleep time. It can be configured to never sleep.



 **Note**

Some models are not equipped with these hardware functions; therefore, they do not have these two configuration options.