

→ **DirectMark Tutorial 3**

Photo and Logo mode

DirectMark Tutorial 3 for ProMarker Series | V001_DM-Tutorial (08/2015)
ENGLISH



Content

1 Objectives of this tutorial	3
2 Creating the graphic	4
3 Printing in Logo mode	5
4 Printing in Photo mode	7
5 Theory behind Photo and Logo mode	10



1 Objectives of this tutorial

This document will show:

- The difference between Photo and Logo mode

Requires:

- ProMarker 300
- 20 Watt
- F160 lens
- Corel Draw installation
- White polycarbonate card

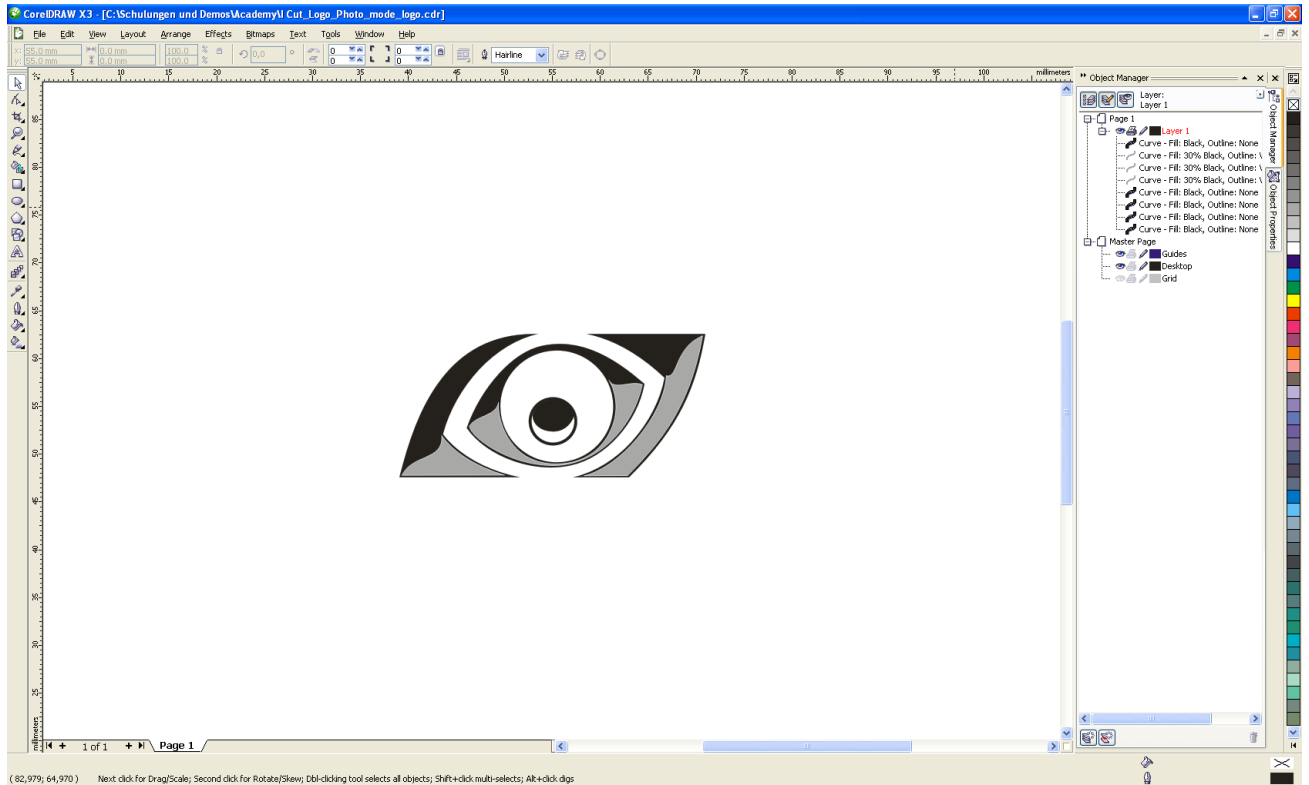


Figure 1: ProMarker series



2 Creating the graphic

1. Open Corel Draw and load the file (Logo.cdr) supplied with this tutorial as shown below.

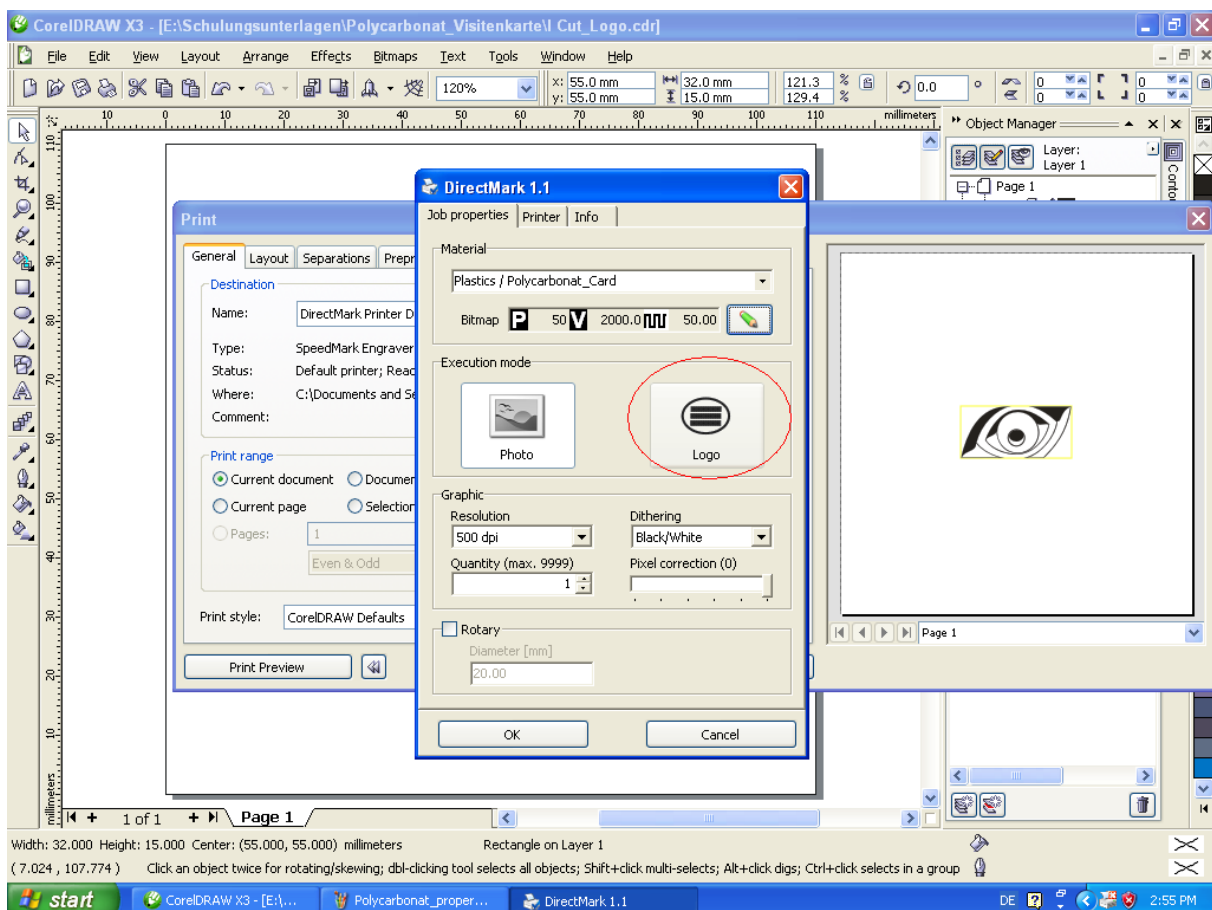


3 Printing in Logo mode

The Logo mode is designed for marking of black and white logos. The function will automatically separate the graphic in black and white areas only and then vectorize these areas to get the shortest possible marking times.

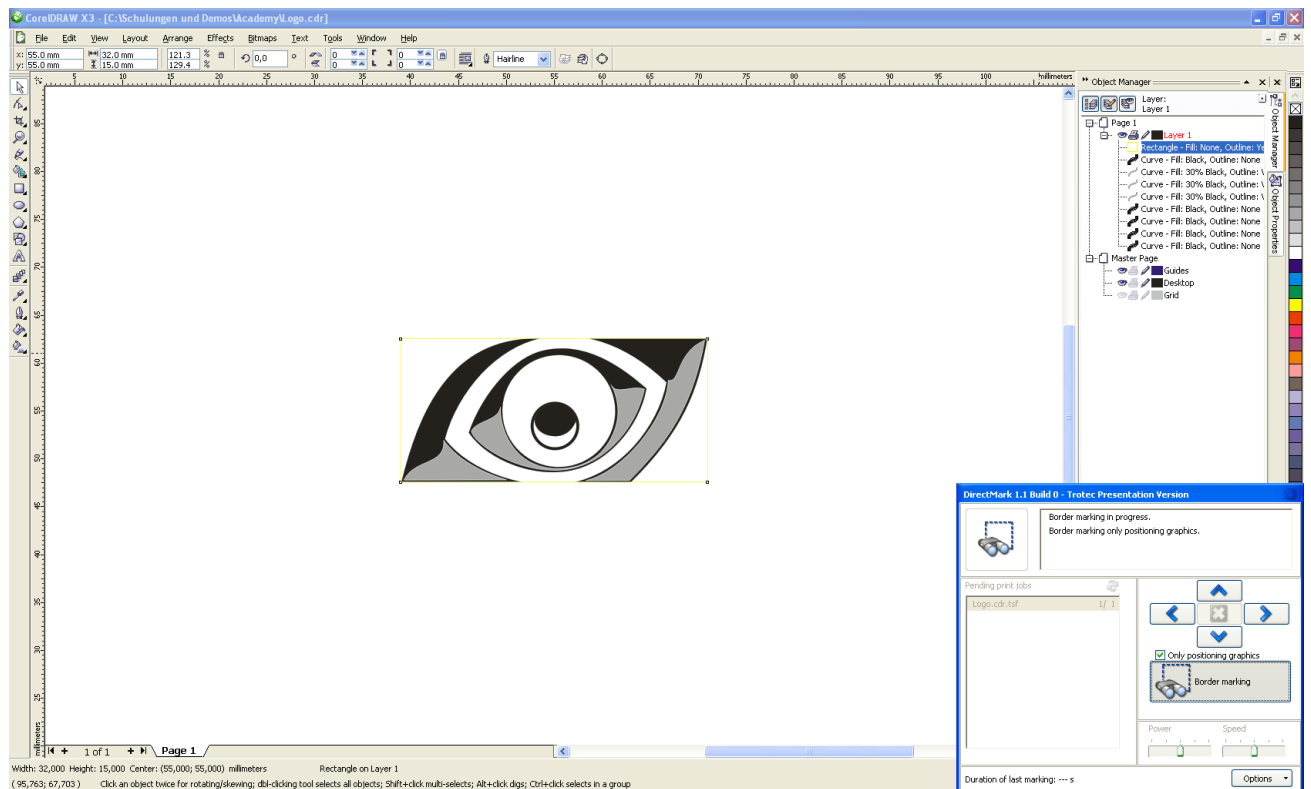
All grey areas either need to be rastered in the graphic software before they can be vectorized in DirectMark or marked using the Photo mode.

1. Focus the laser on the plastic card.
2. Print the page.
3. Go to the Properties window of DirectMark. Set the parameters as follows:
 - a. Chose the material "plastic/polycarbonate" from the list of materials. If the material does not exist, create a new material using the following parameters:
 - Power 50%
 - Marking speed 2.000mm/s
 - Repetition rate 50kHz
 - b. Chose the **Logo** mode
 - c. Set the resolution to 500 DPI

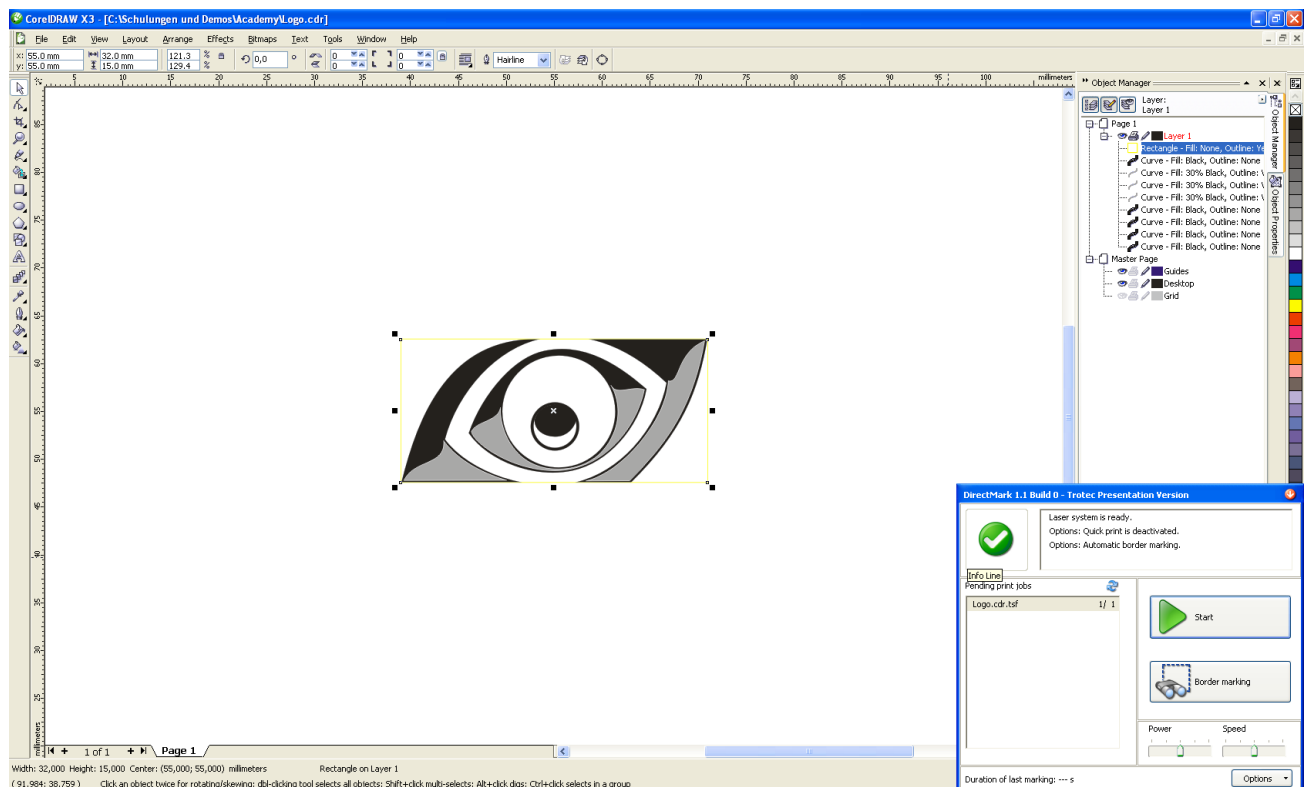


4. Exit the window with OK
5. Send the Job to the ProMarker
6. Position the graphic in the card and stop the pilot laser using the *Border marking* button.





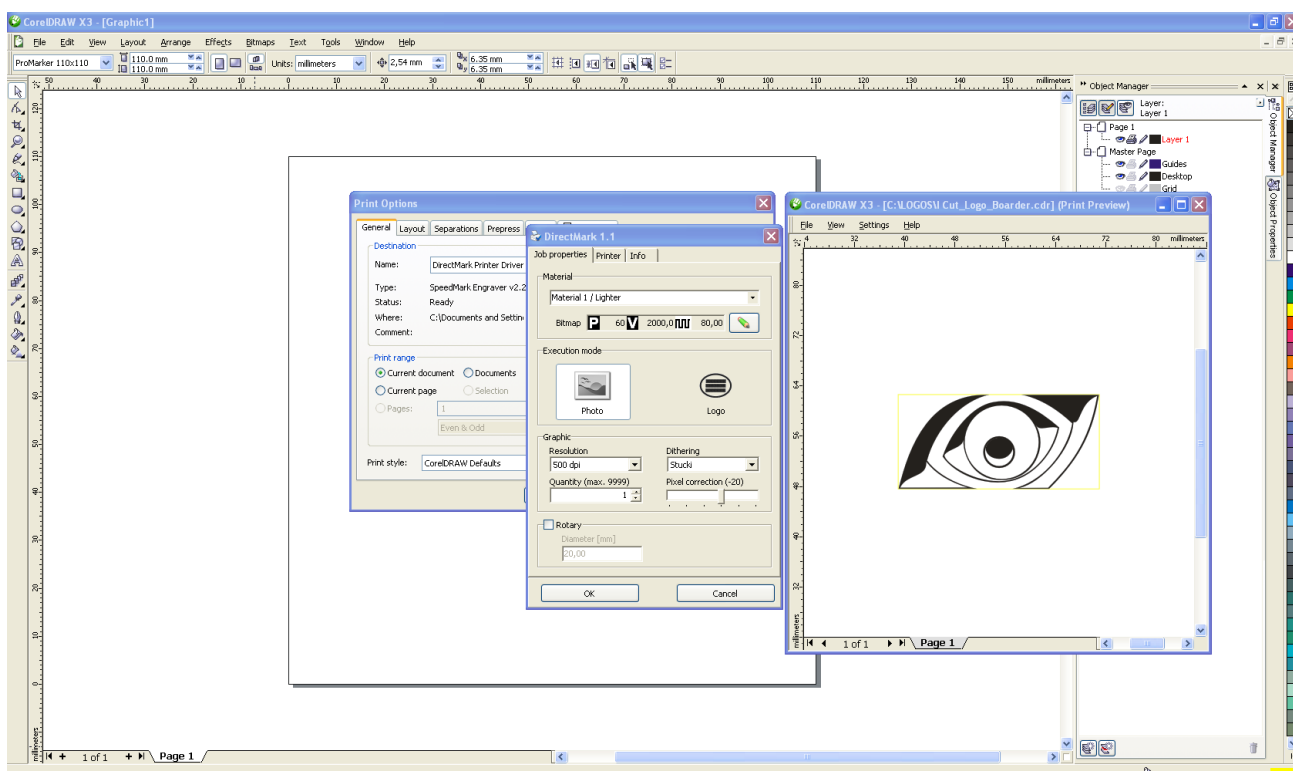
7. Start the job and observe how the ProMarker is marking the logo. The ProMarker will mark different areas of the graphic before jumping to another position. The different areas are sorted to reduce the number of jumps to a minimum. The ProMarker will not mark the graphic line by line.
8. Note the time it took to mark the graphic as indicated at the bottom of the printer driver window.



4 Printing in Photo mode

The Photo mode is designed for raster images so that grey tones can be marked using raster patterns (dithering). Dithering is performed automatically, so that grey tone and color images can be sent to the ProMarker directly without the need to process the images before marking.

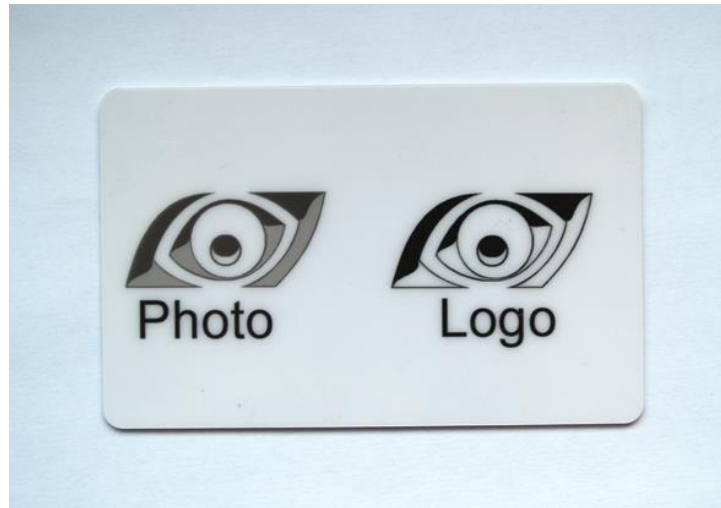
1. Focus the laser on the plastic card.
2. Print the page.
3. Go to the Properties window of DirectMark. Set the parameters as follows:
 - a. Chose the material "plastic/polycarbonate" from the list of materials. If the material does not exist, create a new material using the following parameters:
 - Power 50%
 - Marking speed 2.000mm/s
 - Repetition rate 50kHz
 - b. Chose the **Photo** mode
 - c. Select **Stucki** as dithering algorithm
 - d. Set the resolution to 500 DPI



4. Exit the window with OK
5. Send the Job to the ProMarker
6. Position the graphic in the card and stop the pilot laser using the *Border marking* button.
7. Start the job and observe how the ProMarker is marking the logo. The ProMarker will mark the job line by line, completing a full line regardless of its content
8. Note the time it took to mark the graphic as indicated at the bottom of the printer driver window and compare it to the time achieved with the Logo mode.



The picture below shows the same logo marked in “Photo” and “Logo” mode. The differences include the grey areas that are rastered in the “Photo” mode and left white in the “Logo” mode. As a result the marking time in the logo mode should be much lower.



Due to the fact that in “Logo” mode the laser is only turned on and off at the beginning and end of a vector, whereas in “Photo” mode the laser is turned on for every pixel, the same laser parameters might result in a slightly different appearance.



5 Theory behind Photo and Logo mode

The figure below describes the difference between Logo and Photo mode.

In **Logo** mode, DirectMark uses a threshold to turn the graphic into black and white only. Black areas are vectorized. All vectors are oriented the same way (horizontal).

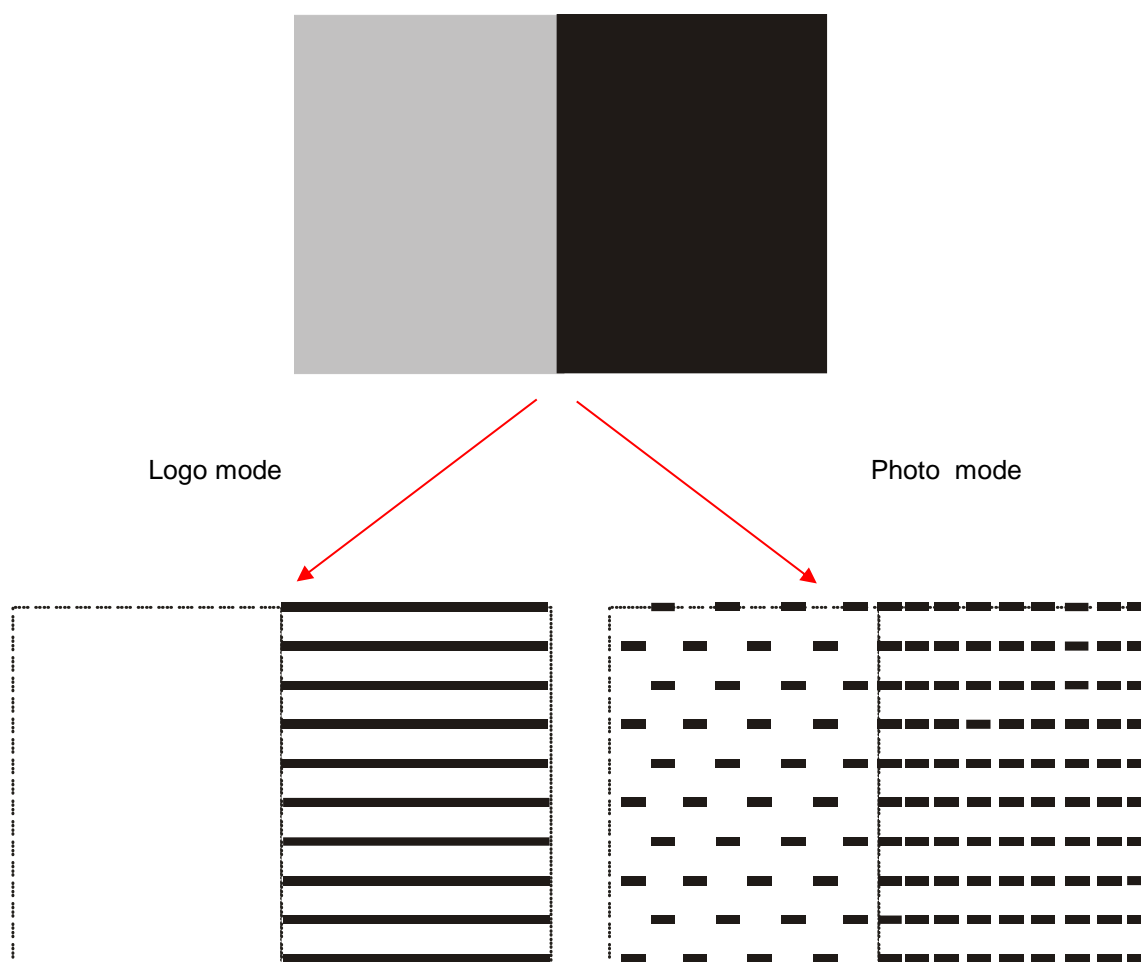
The laser will begin marking at the beginning of a vector and move along the vector with the preset marking speed. At the end of a vector it will jump to the next vector at jump speed. The distance between vectors (hatch spacing) is defined by the resolution (e.g. 1.000 DPI = 0,025mm).

Note that a raster image containing only black and white pixels can be marked using Logo mode.

However the large number of isolated pixel will result in a many isolated vectors reducing the effect the vectorization has on the marking time.

In **Photo** mode, DirectMark will raster the image. The density of “black” pixels is set to represent the grey tone. Each line will be marked with the preset marking speed and the laser is turned on to mark a pixel and turned off for when no pixel is needed. The scanning speed remains the same, no jumps occur between two pixels. The distance between the scanning lines and the “length” of a pixel is defined by the resolution set on the properties page.





Subject to technical changes.

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