

Read Offset Printing Plates with the eXact Spectrophotometer



The eXact is a versatile spectrophotometer for any pressroom. It can be used to measure commercial offset positive and negative plates to enhance accuracy and troubleshoot potential plate problems before it goes to press.

While conventional plate readers often use camera-based technology to measure dot structure, the eXact does not. Instead, it uses light to determine density along with Yule/Nielsen calculations to determine dot area. Since the need to measure plates has changed, Kodak and Fogra have each written whitepapers on this topic and explain that plate measurement is no longer required with process-less plates¹.

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¹ https://www.kodak.com/uploadedFiles/Graphics/Products/Digital_Offset_Plates/Process_Free_Plates/SONORA_XP_Plate/Resources/Quality%20Control%20Checks%20on%20Process%20Free%20Plates%20White%20Paper.pdf

The plate reading feature outlined below works on the eXact Basic Plus, eXact Standard, and the eXact Advanced. Often there are two dominant colors, the base material and the emulsion. Before measuring the plates, you must enable the **Printing Plate Function** on the device.

Step One: Turn on the Plate Function

1. Select **Enhanced Mode**.
2. Select **Densitometer Tool**.
3. Click the **Bottom Task Bar**.
4. Click **Active Functions**.
5. Scroll down and check the box next to **Printing Plate**.
6. Click the **Back-Arrow** button.
7. Click the **Top Task Bar** to return to the **Densitometer Tool** main menu.
8. Select the **Printing Plate Function**.

Step Two: Set the Plate Type to Negative or Positive

1. Click on the **Bottom Task Bar**.
2. Click **Settings**.
3. Scroll down. Under **Function Settings** select **Printing Plate**.
4. Click **Plate Type**.
5. Click either **Negative** or **Positive** depending on the type of plates you are reading.
6. Click the **Back-Arrow** button.
7. Click the **Back-Arrow** button again.
8. Click the **Top Task Bar** to return back to the **Densitometer Tool** main menu.

Step Three: Read the Plate

1. Read the plate background (background 0% for positive plates or 100% for negative plates).
2. Read the solid patch (100% for + plate and 0% for negative).
3. Read the 50% tint patch.



An “N” factor may be required since you likely receive a value other than 50%. While not a perfect solution, the Yule/Nielsen “N” factor does a pretty good job of enabling plate measurements with a conventional spectrophotometer.

To force the eXact to read the 50% tint patch as 50%, change the N-Factor up or down.

Step Four: Change the N-Factor

1. Click the **Bottom Task Bar**.
2. Click **Settings**.
3. Scroll down. Under **Function Settings** select **Printing Plate**.
4. Click on the **Yule-Nielsen Factor (N-Factor)** button and change the N-Factor to something other than **1.15**.
 - The factory default value for the N-Factor is set at 1.15.
 - The numeric value can range from 0.50 to 9.90.
 - Normally going down in the N-Factor will make the dot readings go up, and going up will cause the dot readings to go down.
5. Click the **Back-Arrow** button.
6. Click the **Back-Arrow** button again.
7. Click the **Top Task Bar** to return back to the **Main Menu**.
8. Read the plate ground (background 0% for positive plates or 100% for negative plates).
9. Read the solid patch (100% for positive plate and 0% for negative)
10. Read 50%.
11. Repeat steps 1 thru 10 until the readings on the 50% read 50% on the eXact display.

Once an “N” is properly stored, it is easier to measure most plate materials. From this point forward, the spectrophotometer will “believe” any action that you take. You can call anything “Plate Ground” and anything else “Solid.” The instrument will read both positive and negative materials. To get good numbers YOU must properly establish these end points.

Yule-Nielsen calculations (the “N”-Factors) have been used for over 40 years to “adjust” the output of conventional densitometers, but these adjustments are not perfect. Simply tweaking the “N” does not make a plate reader. However, with many materials this compensation is very good. Absolute microscopic accuracy is not typically required of a good reading device. The ability to repeat and reproduce a measurement is FAR more important.

Step Five: Test Reproduction

1. Carefully place the instrument on one region.
2. Read and re-read this area 10 to 20 times, turning the unit around on the target.
3. Determine whether the unit “sees” with repeatable precision. If there is significant change in the measured values, the eXact should not be used as a measuring device.

Keep in mind, you must manually choose the best 50% on your plate. If that 50% is not actually 50% but 54% and you use the N-factor to force the eXact to read that patch as 50%, you have locked a 4% deviation into your process which can affect your dots and color. If you have a perfect 50%, you are all set. You may want to seek consultation from your plate rep to achieve perfectly calibrated plates.

