

DPM2000 : Four-Color Press Calibration : Re-issue #21 (RIP 4.1r4)

Calibrate means to check, adjust or systematically standardize the gradations of a quantitative measuring instrument. (*The American Heritage Dictionary*)

The DPM and the printing press work together to produce a given tint on the plate and paper to end up with a printed image. If either one of these devices is not printing the tint properly, it will cause the printed image to change. By linearizing the DPM and then calibrating to take into account the dot gain on the press, it is possible to standardize the tints on a printed page.

The calibration process on the DPM is a two step process. The first part of the process linearizes the DPM. This means that when it is asked to output a 10% tint, a 10% tint will be placed on the plate. It does not take into account the dot gain on the press. The second step of the process calibrates for the dot gain on the press.

Some shops may want to stop at the end of the first step. By linearizing the DPM, you will get output similar to what you received from a Service Bureau.

Step 1 - Linearizing the DPM

1. Make sure the chemistry is relatively new and the correct exposure is set for the DPM. (**Utilities - New Material - Exposure**)
 2. Go into the **RIP mode**. Inputs are off. Start at **PrintersRIP®** and go to **Page Setup**. When the dialog box opens, press **Load Defaults** in the lower right corner. Click on the **Configure Device** button and set the plate length to 13". Click **OK** out of **Configure Device**, then click **OK** out of **Page Setup**.
 3. Go to the menu **Output** and pull down to **Print Calibration**. Have **Current Page Setup** selected. **Print Uncalibrated Target**, then process the plate.
 4. **Densitometer** - This is a very critical part of the process. If you do not know how to use your densitometer, please refer to your densitometer users manual.
 - A. First **calibrate** your **densitometer**.
 - B. Figure the **nFactor** if your densitometer uses one.
- When the densitometer asks for white, read the 100% patch. When the densitometer asks for solid, read the background density of the plate. When the densitometer asks for 50%, read the patch you know (visual inspection) is 50%. If you are using a plate densitometer, read 100% for 100% and 0% for 0%.
- C. If your densitometer uses different programs, set up a program in the densitometer to read plate material. If you have a choice to read +dot or -dot, select -dot.
 - D. Now **read the target**. Record the values on paper or the plate.
5. Go back to the DPM. In the **RIP mode** with inputs off, go to the menu **Output** and pull down to **Calibration Manager. Device** should be set to the **DPM**. Click on **New**. Give your set a name such as "**Linear**". Enter the parameters you need for the calibration set such as resolution, dot shape, screen frequency. You should have a ✓ through "**Use for + or -**". The channel should be set to **monochrome** and the **Measurement** should be set as **Positive % dot**. If your measurements taken from the densitometer read; 100%=0%, you can select negative media. This will match the numbers in the calibration set to what you have recorded.
 6. Enter your recorded values into the calibration set. Click **OK**, then **OK** out of the Calibration Manager.
 7. Now go to the **PrintersRIP** menu and pull down to **Page Setup**. If no changes have been made to the DPM, select your calibration set "**Linear**" in the **calibration window** (located on the right in the upper third of the dialog box). **OK** out of page setup. Go to the **Output** menu to the **Print Calibration**. Have **Current Page Setup** selected and click on **Print Calibrated Target**. Process the plate.
 8. Read the values from the plate with the densitometer, recording the values on the plate or paper. If the value is off by more than 1, you may need to edit your calibration set. Go to **Output - Calibration Manager**. Select your calibration set and click on **Edit Calibrated Target**. This part of the calibration process is complete when your readings match the value of the patch +/- 1.

Step 2 - Setting up a calibration for four color process printing.

9. Go into the **RIP mode**. Inputs are off. Start at **PrintersRIP** and go to **Page Setup**. When the new window opens, press **Load Defaults** in the lower right corner. Enter the parameters you will need for the press you will print on. These values will be plate length, gripper margin, screening angles, line frequency, etc.. **Check** the box for **Separate color jobs**. In the box for **calibration** select your set "**Linear**". Leave **Calibrate for Press** blank at this point. When finished click **OK** out of **Page Setup**.
10. Go to **Plate Setups** and pull down to **Save As**. Give this page setup a **name** that will reflect what this setup is for. *An example: 3500-4colr*. Click on **Save**.
11. Go to the **Output** menu and pull down to **Print Calibration**. Have the **current page setup** selected and click on **Print Uncalibrated Press Target**. This should image 4 plates. Process the plates and put them on the press and run them. You should have some standard you print to, such as the GRACol Standards. The Solid Ink Density for CMYK are different for different types of paper. **An example:** grade 3 & 5 coated and run to densities of K = 1.60, C = 1.30, M = 1.40 and Y = 1.00.
12. Now read the dot % with your color densitometer. Again, if your densitometer has different program settings, set up a program to read the printed sheet. You may need to figure your nFactor for the printed sheet. Record the values for each patch of each color.
13. Go to the **Output** menu and pull down to **Calibration Manager**. The **device** should be set to **Printing Press**. Select a **New** calibration set.
14. With the new calibration window open set **Press** to **Linear**. Enter in the other parameters such as resolution and dot shape. Naming the calibration set should reflect the dot shape, frequency and possibly the date. **Forced Solids** should be unchecked. **Measurement** should be set to **% dot**. Enter the values into each of their boxes and do this for each of the colors. If you have a two color press, you can enter values for the colors you are printing and leave the other two blank for now. Once the calibration set is complete, click **OK** out of the **Calibration Manager**.
15. Now go to the **PrintersRIP®** to **Page Setup**. Put a **check** in front of **Calibrate for Press**. Click on the **Press** button. In the new window set the dot gain of the **intended press** to **linear** and the dot gain of the **actual press** to the **new calibration set** you just made. **OK** out of the **Press** dialog. **OK** out of the **Page Setup**. Go to **Plate Setups** and do a **Save As** naming it the same.
16. Go to the **Output** menu and pull down to **Print Calibration**. With **Current Page Setup** selected click on **Print Calibrated Press Target**. Again this will generate 4 plates. Process the plates and put on press, using the same paper and solid ink densities you used on the first run. Now when you measure the patches you should be within 5% of the patch percentage. If this is so, the calibration process is complete. Be sure to **deselect separations** in the **page setup** and do a **save as** if you plan to do separations from the desktop.
17. If your patch values are still not correct, you can go to **Output - Calibration Manager** and select the calibration set. Click on **Edit from Calibrated Target**. Enter the new values and then **output** another **Calibrated Press Target**. Put this on press again and read the new values.

Once the calibration process is completed, you can attach any of these calibration sets to different page setups as long as your parameters (dot shape, screen frequency, etc.) are the same.

If at any time you encounter problems or need help, please call our toll free number for assistance. **1-888-787-7222**