

Screening and Calibration

Xitron Navigator Technical Note

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How do you calibrate the imagesetter from the RIP?

This is a vast subject and the answer will differ with each configuration. Many things can affect the way you calibrate or “linearize” your imagesetter. Film type, chemistry, processor type and settings, imagesetter type, densitometer, all of these can effect the process used to calibrate.

The first step is to familiarize yourself with your equipment.

Be sure you have a densitometer and a good understanding of its function. The densitometer must be correctly calibrated itself before you attempt to linearize or calibrate your imagesetter. It will also need to be “zeroed” each time you take new readings.

Consult your media (film or paper or plate) supplier. Be sure you know the target density for your media and that your are using the appropriate chemistry type and mixture. Verify that your processor settings fall within the recommendations of your media supplier as well.

Carefully review the section of the Navigator RIP users manual that discusses calibration (Generally Chapter 11). The process is different for the various versions of the Navigator RIP.

Note: it is always necessary to establish a different calibration for each resolution used. It may not be necessary to create a calibration for each screen type or screen frequency. Only on site testing and your personal judgement will determine how many calibrations are needed.

If your imagesetters exposure can be set from the RIP (many can be) you will want to follow the outline below. The outline is general, refer to your RIP’s user manual or plugin manual for specifics.

1. Stop inputs.
2. Run an exposure sweep from the output menu (see manual for details).

NOTE: You should be using a page setup that is pure. That is, it should not have color separations on, it should not have HPS Screens on and calibration should be set to “none.” If necessary, create a new page setup, name it “calibration,” and load it before you calibrate the rip.

3. Measure the density and 50% dot on the various images from the exposure sweep.
 - Choose the exposure setting that is within a few percent of 50 and is closest to the target density for your specific media.
 - If none of the exposure sweeps is within range of the desired density and contains a 50% that reads close to 50 on the densitometer you will have to change the range on your exposure sweep and start with step 1 again.
 - NOTE: it is more important to have a percentage reading close to 50 than it is to be exactly on the recommended density. Allowing the density to differ from the recommended reading to get a closer reading at 50% dot will make the process easier and in most cases, more accurate and more stable.
4. After you have chosen the test strip that is closest to your media's target density and has a 50% reading that is close to or exactly 50, read percentages for the remaining samples on the test strip.

Note:

It is often the case with today's rapid access films that the film will linearize itself once the ideal exposure is reached. That is, if you can achieve a 50% dot that is + or - 2 simply by setting the exposure, the rest of the percentages will also be + or - 2. Varying the exposure slightly can often bring your readings closer than that. If this is the case, all you have to do is set the desired exposure in your page setup screen and run with no calibration applied - the film will have calibrated itself.

As mentioned above, to achieve this self-calibration goal you may have to vary slightly from the recommended film density. For instance, the recommended film density may be 4.5 and linearization may occur at a density of 4.8 or 4.1. Do not let this concern you unless the density is extremely low (if it is, check your processor, chemistry, and even the age and ability of your laser). Stable linearized film is the goal.

5. If the film is not linearizing itself, enter the numbers you read on the densitometer in the calibration manager (refer to your users manual for further details).
6. After you have created a calibration in the calibration manager, you must apply that calibration in the page setup(s) you have established for that resolution (refer to your users manual for a more information on applying a calibration to a page setup).
7. If it is necessary to use the calibration manager, verify your calibration by running a calibrated test strip. This is done by opening the print calibration dialog window, choosing the page setup where the calibration has been applied and selecting "Print Calibrated" (refer to your users manual for details). Read the percentages on the new calibration strip. They should be within + or - 2 of the target value. If they are not, you can choose "Edit from calibrated target" and enter the new values. Now print another calibrated test strip and check the dot values.

Note: You should not have to enter values more than twice. If you find that the film does not linearize after entering numbers twice, check your chemistry, processor, and laser, or verify that you are not over or under exposing the film. If you are starting with percentages that are more than 8% off at 50 (58 or 42) one of the above problems is most likely the cause.

Attempting to compensate for excessive variation by using the calibration settings can reduce available gray levels, cause banding, moire patterns, posterization, and consistency problems.

If you are not achieving a dot which is + or - 2% from the specified percentage on the test strip there is most likely a problem with the various and sundry influences or steps that preceded the calibration attempt. Be sure that your chemistry is correct and your processor is adjusted correctly. Also, make sure the target density produces a 50% dot that is close to true. Make sure your densitometer is calibrated and used correctly, etc. After you have checked these things, start again.