

Printing Calculators

Printing calculators are, for the most part, little more than collections of many tiny pieces of color printing filters, all put together in a logical pattern. There is an additional section included on most calculators that is, in effect, an extinction scale in either red or neutral density.

All color printing calculators are based on the often invalid assumption that any subject you may photograph will fall within a well proven statistical norm and reflect an average distribution of light of the colors of the three additive primaries, red, green, and blue into your camera's lens. The calculators also assume that you will be smart enough to follow the directions packed with them; that you will use them in conjunction with an enlarger with a 75 watt lamp of reasonable color temperature (about 3000 K); that you will print with CP acetate filters; and that you will put a diffusion screen (supplied with the calculator) under the lens while you make a contact print of all of the tiny little filter segments on the calculator. The contact print is made with light coming from your enlarger lamp, passing through an IR, a UV, and whatever other filters the instructions call for, and then through your color negative or slide, your lens, and finally, through the diffuser and then the calculator itself.

When you process and dry a contact print of a calculator, you should, if you have followed the manufacturer's instructions, see a printed matrix of little colored areas corresponding to the filter sections on the calculator. Among those areas, if you get lucky, will be one or more which appear to be gray. You visually confirm the grayness of the areas with a comparator, also always supplied with the unit, and then go through a decoding procedure to determine what the particular position in which you have located the gray area means in relation to the filters that are going to be needed in your enlarger's printing filter pack to make a print of the negative or slide in the carrier that will be properly (statistically) balanced.

Sometimes learning to use a calculator is considerably harder than reading the pertinent

portions of this book and learning to print; other times learning to use a calculator is quite simple. It's really very much a function of how well the calculator has been designed for ease of use, and how well the instructions that go along with the device have been written.

Once you have determined the proper filter pack to use, you refer to the portion of the contact print that contains the image of the extinction scale to determine the last numeral on that scale you can read. With that information, you once again go through a decoding procedure which may be painfully simple or grossly complicated, again, depending on how well the unit you are using has been set up for ease of operation and how well its instructions have been written.

Once you have obtained all of the data the instrument can provide, you will know what filter pack, lens opening, and printing exposure time to use to make a print of the unknown negative or slide in the enlarger's negative carrier, for the particular set of printing variables at hand (paper magnification, processor, and processing, etc.). Using this data you will most often obtain a commercially acceptable print. If you are particular, it will probably take you about two or three more tries using the methods explained earlier, to get exactly the right filter pack and exposure, based on results obtained with the calculator's best efforts.

A reasonably experienced color printer is able to do as well or better using viewing filters to check a calibrated contact sheet, as he or she can do with a calculator. And relying on the contact sheet will save you the time and expense of having to make a contact print of the calculator.

Color printing calculators are really little more than crutches for people without the confidence to trust their own judgment, or who haven't the experience to have developed any judgment. The danger in using them is that you may find that you like using this kind of a crutch, and if you continue to do so you may never develop the judgment that will enable you to throw it away. A description of several such devices follows.