

# How to Build and Use a Zone Dial

## Additional functionality for popular spotmeters

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fig.1 The customized zone dial for the Pentax Digital Spotmeter is a visual reference and will simplify zone placement. Zone III and VII are marked to place shadow and highlight details.



The lightmeter became part of the photographer's tool-box about 100 years after the invention of photography. Beforehand, photographers relied on empirical methods or a set of reference tables to determine the correct film exposure. Early exposure meters consisted of a holder for light sensitive paper and comparison step wedges with increasing densities. The paper was exposed for a given time to the same lighting conditions as the scene and then compared to the step wedge. The step, which was the closest to the exposed paper in density, gave an indication of the required exposure. Lightmeters have come a long way since then and have evolved to be accurate and dependable tools, no photographer wants to be without. A serious Zone System practitioner has little or no alternative than to use a spotmeter capable of reading subject luminance within an angle of  $1^\circ$ . This narrow angle of acceptance permits convenient tonal placement of small but important subject detail. It may not be a coincidence that the invention of the Zone System followed the introduction of the first spotmeter in 1945.

### Reading the Lightmeter in Zones

Lightmeters, including spotmeters, are calibrated to suggest a film exposure, which will render the subject detail measured as an average or middle gray in the print. We refer to this as a Zone V exposure. Consequently, if a luminance reading is taken with the meter, and this reading is used to determine film exposure without alteration, then we have placed

the subject detail on Zone V. However, if we want the same detail on Zone IV, then we give 1 stop less exposure or 2 stops less to place it on Zone III. Alternatively, a 1-stop exposure increase will place the reading on Zone VI and so on. This technique is called zone placement and can be simplified with the aid of a custom zone dial.

Fig.1 shows a custom zone dial for the Pentax Digital Spotmeter. Feel free to copy it from the book for your personal use. Once applied to the meter as shown, a light reading can be placed on any zone, providing accurate tonal value placement without calculations.

### The Standard Zone Dial

It is very helpful for the student and the teacher to have a variety of educational props at hand when discussing photography in general and the Zone System in particular. Over the last few years, I have prepared many of these tools myself and most have proven to be very useful aids in my own classes, but the standard zone dial is by far the most popular. This is at least partially due to the fact, that the pocket size version shown here, can be used as a zone calculator and reference guide, while practicing the Zone System outside of the classroom. In addition, the use of the EV scale has reduced the complexity of similar devices to just two dials, which makes it easier to assemble and use.

All you need to build your own is a few pieces of cardboard, the use of a copy machine, some self-adhesive labels or glue, a small utility knife and some hardware to hold it together. Feel free to copy the illustrations in fig.2 from the book for personal use and glue them to the cardboard. Then carefully cut out the shapes, laminate with clear foil to give it some protection and use a bolt, nut and washer combination to assemble the two dials through the marked center points.

The standard zone dial works well with any lightmeter, which provides film sensitivity adjusted EV readings. Most spotmeters do, one exception being the Pentax Digital Spotmeter, which needs an alternative zone dial as shown in fig.1. Take a shadow reading and place its EV number next to the desired negative zone. Now, take a highlight reading and its EV number location on the dial will reveal the negative zone onto which these highlights will fall at normal development. Taking additional readings, you can estimate zone placement for various subject areas.

Necessary development corrections can be predicted from the differences between highlight zone readings and their preferred values. If, for example, the shadow zone is read and placed, and the desired highlight for Zone VIII happens to actually fall onto Zone X, then an N-2 development is required.

The final decision on exposure can be made from any aperture/time combination in the window, because the EV numbers were provided as film sensitivity corrected values from the lightmeter. In addition, the standard zone dial provides a valuable overview of zone placement for the entire scene.

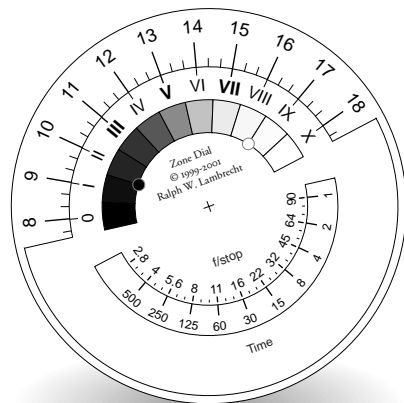


fig.3 The assembled standard zone dial provides a handy reference to the way subject brightness will be represented in the final print.

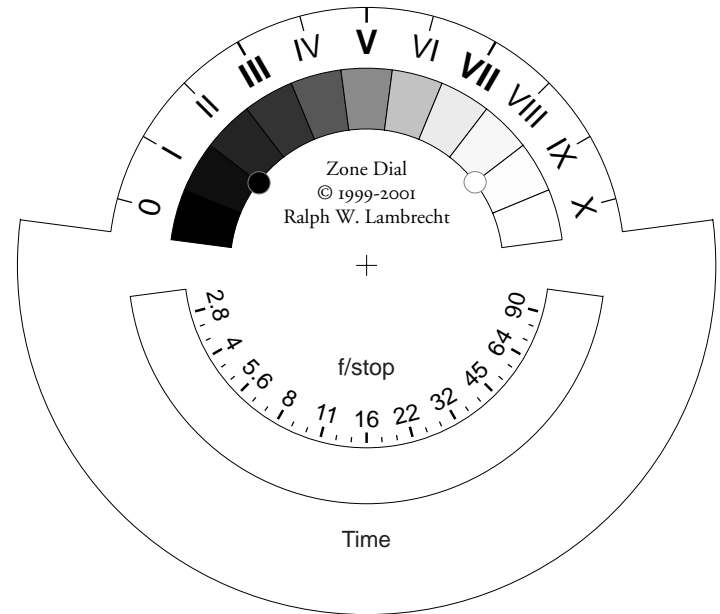


fig.2 Only two disks are required to make the standard zone dial. Zone III and VII are marked to place shadow and highlight details, and in addition, the tonality extremes are shown as black and white points at Zone I•5 and VIII•5.