Bell & Howell / Canon

NEWSLETTER

EXPOSURE MEASUREMENTS WITH THE BOOSTER METER AND THE RECIPROCITY CHARACTERISTICS OF COLOR FILMS

The Canon Booster Meter (112665) for the FT-QL and Pellix QL cameras is a CANON EXCLUSIVE! This ultra-sensitive device extends the metering range of these two cameras to far beyond the range of any other through-the-lens meter camera. Time exposure measurements as long as 30 seconds (60 sec. with the Pellix QL) are possible when using ASA 100 film.

Being able to measure the illumination of poorly lighted subjects brings forth a factor which must be considered—the reciprocity characteristics of the film being used. We ordinarily assume that if a lens opening is changed by one stop, the exposure time can be doubled (or halved, as the case may be) and the total exposure will remain the same. This "law" of reciprocity generally holds true *except* when the exposure time is 1/10 of a second or longer The so-called failure of this law of reciprocity is due to the characteristics of the film, and will vary from film to film. Long time exposures can be off as much as 2 or 3 stops if this reciprocity effect is not considered. In addition to the lengthening of the measured exposure time, some films require a color-compensating filter to control the color balance of the film.

The following chart gives approximate exposure compensation figures (in additional f/stops required) and filter requirements when using some of the commonly available 35mm GAF (Anscochrome) and Kodak color films with long exposures. For reciprocity characteristics of other films, write directly to the film manufacturer.

NOTE: Factors for the recommended filters are NOT calculated into the exposure compensation figures. Cameras with through-the-lens metering systems will automatically take the filter factor into account when the meter reading is taken.

To calculate exposure increases in time instead of f/stops, multiply the original exposure as follows:

For 1/3 stop increase, multiply exposure by 1.3
For 2/3 stop increase, multiply exposure by 1.6
For 1 stop increase, multiply exposure by 2
For 1 1/3 stops increase, multiply exposure by 2.6
For 1 2/3 stops increase, multiply exposure by 3.3
For 2 stops increase, multiply exposure by 4
For 2 1/3 stops increase, multiply exposure by 5
For 2 2/3 stops increase, multiply exposure by 6.3
For 3 stops increase, multiply exposure by 8.

EXPOSURE COMPENSATION AND FILTER REQUIREMENTS FOR RECIPROCITY CHARACTERISTICS OF KODAK AND GAF COLOR FILMS

FILM	EXPOSURE TIMES				
	1/10 sec.	1 sec.	10 sec.	100 sec.	20 min.
Anscochrome D/50	None / No Filter	+1/3 stop / 05M	+2/3 stop / 10M	+1 1/3 stops / 10M	+2 1/3 stops / 10M
Anscochrome D/100	None / No Filter	+1/3 stop / 05R	+1 stop / 1OR	+1 1/3 stops / 10R	+2 1/3 stops / 10R
Anscochrome T/100	+1/3 stop / 10R	+1/3 stop / 20R	+2/3 stop / 20R	+1 1/3 stops / 20R	+2 stops / 20R
Anscochrome D/200	+1/3 stop / 05R	+1/3 stop / 10R	+1 1/3 stops / 10R	+2 stops / 10R	+3 stops / 10R
Kodacolor-X	None / No Filter	None / No Filter	+1 stop / No Filter	+2 stops / No Filter	——
Kodachrome II	None / 05R	+1/3 stop / 10R	+2/3 stop / 20R	+1 1/3 stops / 25R	——
Kodachr. II Type A	+1/3 stop / 05R	+1/3 stop / 10R	+2/3 stop / 20R	+1 1/3 stops / 25R	——
Kodachrome-X	None / No Filter	+1/3 stop / 05M	+2/3 stop / 05M	+1 1/3 stops / 10R	——
Ektachrome-X	None / No Filter	+1/3 stop / 05Y	+2/3 stop / 20Y	+1 1/3 stops / 40Y	——
H.S. Ektachrome	None / No Filter	+1/3 stop / 20B	+1/3 stop / 20B+20M	+1 stop / 20B+30M	——
H.S. Ektachr. Type B	None / No Filter	+1/3 stop / 05G	+1 stop / 10G	+2 stops / 05Y	——

It is important to remember that filter factors *need not be considered* when using the FT-QL and Pellix QL cameras. Since the cameras' metering systems work through the camera lens, the light that reaches the meter cell is automatically filtered. When using this reciprocity information with cameras that do not have through-the-lens metering, the filter factor must be considered when making an exposure increase. Factors can be obtained from the filter manufacturer. The filter designations in the chart are for color-compensating (CC) filters which are made by Kodak and other firms.