

PHAOSTRON

Pats. Pend.

Trade Mark

Model B

Exposure Meter Film Speed Chart

PHAOSTRON CO.
Alhambra, California



How To Use Phaotron Exposure Meter

Films vary as to the amount of light needed to correctly expose them. This property is called film speed or emulsion speed. A complete film speed chart is on the reverse side of this sheet. For exposures made under natural light conditions use the numerical designation shown under heading marked "Daylight." For indoor photography or exposures taken under artificial light conditions use numerical designations under column marked "Tungsten." You need only know the numerical film speed designation of the type film you are using to operate Phaotron Exposure Meter.

Note Simplicity of Operation

No. 1—Set dial A so that correct film speed of the film you have in your camera, appears in window "B."

No. 2—Hold Phaotron in left hand approximately 12 inches from eyes, with knob "C" facing you, with left thumb resting on switch button "E." See illustration above.

No. 3—With Phaotron held as shown above, aim at subject to be photographed.

No. 4—Look at two windows "D" and press button "E." Now turn knob "C" until red glow in windows "D" match each other in intensity. Release button "E" as soon as windows "D" match each other.

No. 5—The proper settings for your camera now lie opposite each other on the dials. "F" stops (aperture openings) on the inner scale "F," and shutter speeds on outer scale marked "S."

SELECTING THE PROPER F STOP

In selecting camera settings for a picture, you have a number of F stops and shutter speeds to choose from. F stops on dial "F" and shutter speeds on dial "S." You are limited only by the number of shutter speeds on your camera.

For example, let us assume that your camera has only the following shutter speeds: 1/250 - 1/100 - 1/50 - 1/25 - 1/10 and 1/5 and that the Phaotron shows F stop 2 on scale F indexes opposite 1/1000 on scale S. Then any of the following camera settings could be used because they lie directly opposite each other on scales F and S.

F-4 at 1/250	F-8 at 1/50
F-5.6 at 1/100	F-11 at 1/25
F-22 at 1/10	
F-32 at 1/5	

If the scene contains objects in motion, select a shutter speed to stop all action, and use the F stop shown directly opposite on scale F.

The larger the F number the smaller the stop (aperture opening). Bear in mind that as the stop (or aperture opening) is reduced the F stop numerically increases. Smaller F stops will bring more objects into sharper focus and help correct errors in judging distance.



USE OF FILTERS

When photographing with a color filter over the camera lens it is usually necessary to increase the exposure. A simple method for allowing for this is to divide the speed of the film by the filter factor and reset the film speed in window B of the Phaotron.

For example, if you are using a film with a speed of 16 for daylight and a 2x filter, then 16 divided by 2 equals 8 and reset film speed in window B to 8. If you are using a 4x filter, then 16 divided by 4 equals four and reset film speed to four.

Maintenance

To keep the Phaotron at peak accuracy, replace batteries every four months or after every 180 exposures. Count each time you push button as an exposure. Keep exposures under ten seconds duration.

To replace batteries, remove back. Use either Burgess Z or Eveready No. 915 batteries, available everywhere at 5 cents each.

Both batteries must be installed with brass caps toward top as indicated below.

Each Phaotron is individually calibrated and adjusted. Tampering or removing metal back plate may disturb this adjustment and therefore is not recommended.



MINIATURE CAMERA FILMS

Based on the development to a gamma of .8 in the fine grain developer recommended by the film manufacturer.

AGFA	Fine Grain Plenachrome	24	16
	Finopan	24	16
	Fine Grain Rev. Superpan	24	16
	Ultra Speed Pan	100	64
	Supreme Superpan	50	32
DUPONT	Superior	24	16
	F. G. Parpan	12	8
	Micropan	6	4
EASTMAN	Super XX	100	64
	Plus X	50	32
	Super X	24	16
	Panatomic X	24	16
	Panatomic	24	16
GEVAERT	Express Superchrome	12	4
	Panchromosa	12	8
PERUTZ	Peromnia Film	12	8
	Neo Persenso	12	4
	Perpantic	12	8
	Pergrano	6	4

ROLLS AND PACKS

Based on a developing procedure similar to that of the commercial photo-finisher; that is, 5 minutes in DK. 50 developer.

		Day-light	Tung-sten
AGFA	Plena. Roll	24	16
	Standard Rolls	12	4
	Superpan Rolls & Packs	24	16
	Super Plena Rolls & Packs	50	32
	Finopan	24	16
	Superpan Press	100	64
EASTMAN	Super XX	100	64
	Verichrome	24	16
	Panatomic X	24	16
	N. C.	12	4
	Panchro Press Film Pack	50	32
	Process Packs	4	2
GEVAERT	Superchrome	12	4
	Panchromosa	24	16
PERUTZ	Peromnia	16	8
	Persenso	12	6
	Perpantic	10	6
	Pergrano	5	3

PRESS

Based on being developed to a gamma of 1.2 in order to give greater contrast.

AGFA	Superpan Press	100	64
	Super Plenachrome Press	100	32
EASTMAN	Super Panchro Press	100	64
	Super Ortho Press	100	32
	Panchro Press	50	32
	Ortho Press	50	16
	Ortho Press Plate	50	16
DEFENDER	XF Ortho Press	50	16
	XF Pana Press	50	32
GEVAERT	Ultra Panchro Press	24	16
	Super Press Plate	24	16
ILFORD	Ortho Press	24	12
	Double X Press	32	12

AERO FILM

Based on being developed to a gamma of 1.2 in the film manufacturer's recommended developer.

AGFA	S. S. Pan	32	---
	Special F. G.	64	---
	Ultra Speed Pan	125	---
EASTMAN	Spec. Topographic Pan	50	---
	S. S. Pan	24	---

PROCESS

Based on development to a gamma of 3.0 which is found to be standard practice among users.

AGFA	Process	6	2
DEFENDER	Process	6	2
	Process Pan	6	1
CRAMER	Iso Process Plate	10	5
	Contrast Plate	3	1.5
EASTMAN	Process	6	2
	Process Pan	6	4
	Process Plate	3	1
GEVEART	Process Extra	3	1.5
	Process Ortho Plate	20	8
HAMMER	Process	6	2
	Super Process	6	2
	Process Plate	6	4
ILFORD	Process	5	3
	Process Pan	12	10
	Process Plate	5	2
	Spec. Rap. Proc. Pan. Plate	16	12
	Rapid Process Plate	16	10

COMMERCIAL

Based on development to a gamma of 1.0 in the recommended developer.

AGFA	Triple S Pan	100	64
	Commercial	12	4
	Commercial Ortho	12	8
	Commercial Pan	24	16
CRAMER	Alpha	6	2
	Commercial	8	3
	25	8	3
	Medium Iso	12	6
	Postal	16	6
	Lantern Slide	3	1
	Pictorial Lantern	5	2
DEFENDER	Commercial	12	4
	F. G. Pan	24	16
	Pentagon	24	16
	Seed L. Ortho Plate	12	8
	Seed 26 X Plate	12	8
	Seed N. H. L. Ortho Plate	12	8
	Seed 27 Plate	24	8
	Seed 23 Plate	6	2
	Stanley Reg. Plate	12	8
	Stanley Extra Imp. Plate	12	8
	Standard Orthonon Plate	12	8
EASTMAN	Commercial	12	4
	Commercial Pan	24	16
	Commercial Ortho	12	8
	Commercial Plate	24	4
	33 Plate	24	4
	Universal Plate	24	8
	Postcard Plate	12	4
	W. & W. "M" Plate	12	8
	W. & W. Metallographic Pl.	8	4
	W. & W. Pan. Plate	12	8
GEVAERT	Commercial	12	4
	Commercial Ortho	12	8
	Superchrome	24	8
	Sensima Ortho Plate	12	4
	Super Chromosa Plate	6	4
HAMMER	Extra Fast	12	4
	Medium Commercial	12	2
	Medium Commercial Ortho	12	2
	Medium Commercial Plate	12	2
	Medium Commercial Ortho Plate	12	4
	Slow	3	1
	Extra Fast Blue Label Plate	20	8
	Slow Plate	3	1
	Special Red Label Plate	24	10
	Photo Postal Plate	20	6

PORTRAIT

Based on being developed to a gamma of .9.

		Day-light	Tung-sten
AGFA	Portrait	12	8
	S. S. Plena	50	16
	Superpan Portrait	24	16
	Isopan	50	32
	S. S. Pan	50	32
DEFENDER	XF Pan	50	32
	XF Ortho	50	16
	Portrait H. G. S.	24	16
	Portrait	12	8
EASTMAN	S. S. Pan	50	32
	S. S. Ortho Port. A.H.	50	16
	Portrait Pan	24	16
	Par Speed Portrait	24	8
	Panatomic X	24	16
	Polychrome Plate	24	8
	W. & W. Tri-Color	50	32
	50 Plate	24	16
	40 Plate	24	8
	D. C. Ortho Plate	24	8
	S. C. Ortho Plate	24	8
GEVEART	Studio High Speed	24	16
	Studio Ultra Panchro	12	8
	Ultra Panchro Plate	24	16
HAMMER	Portrait Ortho	24	4
	S. S. Ortho Plate	24	8
	Slow Ortho Plate	3	1
ILFORD	Portrait Pan	32	20
	Hypersensitive Pan	50	24
	Hyperchromatic	64	32
	F. G. Pan	6	4
	Soft Grad. Panchro Plate	20	12
	Hypersensitive Pan Plate	50	32
CRAMER	Banner X	16	6
	Crown	16	6
	Panchrome	24	12
	High Speed	32	12

COLOR PHOTOGRAPHY

Color film and plates have less latitude than black and white emulsions. It is therefore essential that exposures for color film must be more accurate than for black and white film.

Tests prove that exposures must be technically correct and within one stop in order to obtain correct color rendition.

The following color film speeds are correct for carefully checked equipment. If with your equipment either over or under exposures are obtained the film speed values should be altered. If the pictures are under exposed (too dense) reduce the film speed values. If pictures are overexposed (too thin) increase the film speed values.

These changes in film speed values artificially correct exposure to compensate for equipment errors and should not be interpreted as actual change in film speed ratings.

AGFA

Ultra Color Plate	Day-light	Tung-sten
	3	---

DEFENDER

Dupac	Day-light	Tung-sten
	6	12
Tripac	Day-light	Tung-sten
	1.5	3

LUMIERE FILMCOLOR

Daylight	Day-light	Tung-sten
		20
Mazda	Day-light	Tung-sten
		6
Photoflood	Day-light	Tung-sten
		8
For Lumiere material read exposure time in minutes instead of seconds.		

FINLEY PROCESS

Daylight	Day-light	Tung-sten
		2
Mazda	Day-light	Tung-sten
		1
Photoflood	Day-light	Tung-sten
		1

DUFAYCOLOR

Daylight (no filter)	Day-light	Tung-sten
		8
Daylight (with daylight green filter)	Day-light	Tung-sten
		6
Photoflood or Photoflash (1A filter)	Day-light	Tung-sten
		-3
Mazda (1B filter)	Day-light	Tung-sten
		2
Above color values include the filters recommended by the manufacturer.		

KODACHROME

8, 16, 35 mm. Regular	Day-light	Tung-sten
	8	3*
8, 16, 35 mm. Type A.	Day-light	Tung-sten
	8*	12
*Use filter recommended by the manufacturer.		