

ILFORD

PHOTOELECTRIC

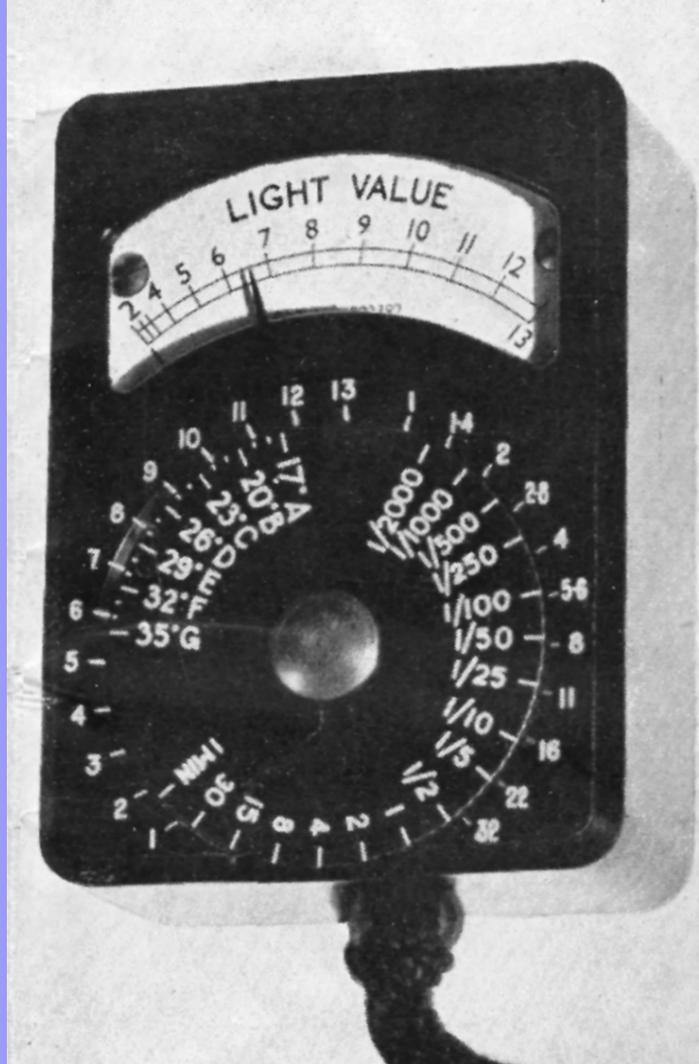
Exposure Meter



Model C

Ilford Photo-Electric Exposure Meter shown actual size

Correct photographic exposure depends on a knowledge of the amount of light reflected towards the camera by the subject, and this may be determined in a number of different ways. One of the simplest and most convenient means of measuring subject brightness is provided by the photocell, which has the property of generating an electric current which varies in strength according to the amount of light falling on the cell surface. Such a cell used with a sensitive microammeter and suitably calibrated adjustable scales, constitutes a photo-electric exposure meter with which it is possible to make direct exposure determinations over a wide range of lighting conditions for photographic materials of various sensitivities.



ILFORD Model 'C '

PHOTO-ELECTRIC Exposure Meter

The Ilford Photo-electric Exposure Meter, Model C, is very simple to use and only two operations are needed to find the exposure required. It is of robust construction and may safely be carried in the pocket or suspended from the neck by the cord provided.

The photocell is protected by a sealed glass window and is so placed that the angle of view (or "acceptance angle") is similar to that of the average camera lens. Provided the meter is handled with reasonable care, there is no limit to the life of the cell as it can only be injured by physical damage or by prolonged exposure to extremely bright light such as direct sunlight.

The needle of the microammeter, which is deflected by the current generated in the photocell, passes over a scale indicating relative light values. Each successive number on the scale corresponds to a doubling of scene brightness as compared with the previous number.

**General
Description**
(continued)

To convert light value readings to camera exposures, the meter is provided with a rotating dial which is arranged to take account of plate or film sensitivity (see illustration). As on earlier Ilford exposure meters, the dial is graduated on the Ilford Group System (Group letters A to G) and it also carries the logarithmic speed indices (17° to 35°) used for many years with Ilford materials. The latter, which have frequently been referred to as European Scheiner degrees, are approximately one unit higher throughout than the corresponding B.S.I. logarithmic exposure indices. A table giving appropriate settings for Ilford films and plates appears on page 8.

To the left of the disc the scale of Light Values is repeated on the body of the meter, and after noting the reading of the needle it is only necessary to rotate the dial until the speed number of the material in use coincides with the observed light value. The correct exposure time for any given lens aperture, or vice versa, can then be found by direct reference to the exposure and aperture scales appearing at the right of the dial and meter body respectively.

For example, the needle of the meter in the illustration indicates a Light Value between 6 and 7 and it has been assumed that an exposure is to be made on H.P.3 roll film, for which the appropriate logarithmic speed index is 32° . The disc has been rotated so that 32° is placed between 6 and 7 on the outer scale and it will be seen that the exposure required is 1/25 second at f11 or 1/50 second at f8 and so on.

EXPOSURES IN DAYLIGHT

1a. Normal Method

Standing at the camera position, direct the window of the meter towards the subject. Take care to avoid the inclusion of too much sky and, if necessary, tilt the meter slightly downwards. Observe the light value and proceed as explained in the previous paragraph.

By this method of working, the reading obtained is an average light value for the whole scene and the meter is so adjusted that this will yield a satisfactory exposure with subjects of average contrast and brightness range. With subjects of exceptionally high or low contrast, and with those containing important detail in deep shadow or prominent highlights in the foreground, a correction to the indicated exposure is necessary to avoid a tendency to over- or under-exposure, as recommended below:-

Brilliantly lighted scenes with important foreground detail in deep shadow

Double the exposure

Scenes with bright foreground highlights, such as white walls or clothing

Increase exposure by 50%

Distant views, landscapes or seascapes without foreground and other scenes of low contrast

Halve the exposure

1b. Highlight Method

This method is particularly recommended when using reversal materials but may also be used for negative materials when working in very dull lighting conditions (e.g. interiors) where it may prove impossible to obtain a reading by method 1a.

A piece of matt white card or blotting paper, about 10 in. square, is placed close to the principal part of the subject and a reading taken with the meter held a few inches away. Care must be taken to avoid casting a shadow on the paper while making the observation. When working by this method in daylight, the required exposure for all classes of sensitive materials is 8 times that indicated by the meter.

EXPOSURES BY ARTIFICIAL LIGHT *(Tungsten filament lamps)*

It is not generally possible to obtain a reading by pointing the meter at the subject from the camera position. There are two alternative methods, either of which will be found to give satisfactory results :-

Proceed as already explained under method 1b. The exposure indicated by the meter must be multiplied by a correcting factor which varies according to the class of sensitive material employed, as indicated below :-

Hypersensitive Panchromatic.....	8
Normal Panchromatic.....	12
Orthochromatic.....	20

In this method the meter, held at the position of the subject, is directed towards the principal light source and is swung very gently up and down and from side to side until the Light Value reading is at a maximum.

2a. Highlight Method

2b. Light Source Method

As in the highlight method, a correction factor must be applied to the indicated exposure :-

Hypersensitive Panchromatic.....	40
Normal Panchromatic.....	60
Orthochromatic.....	100

CINE PHOTOGRAPHY

The meter may be used for cine work by any of the methods already described. The standard rate of operation for most 16 mm. amateur cine cameras is 16 frames per second and the correct exposing aperture will be found on the meter scale against a shutter speed of 1/25 second. For other rates of operation, the shutter speed varies proportionately as indicated below, the required working aperture being read off accordingly:-

24 frames/second	between 1/25 and 1/50 second.
32 " "	1/50 second
48 " "	between 1/50 and 1/100 second.
64 " "	1/100 second.

ILLUMINATION MEASUREMENTS

To enable the meter to be used for measuring illumination, as for example in a living room or workshop, a table giving the relation between the Light Value numbers and foot candles is given on the back of the meter.

SPEED SETTINGS

As mentioned on page 4, the Ilford Exposure Meter Model C is graduated in Ilford Logarithmic Speed Indices and also carries the letters of the Ilford Group system. In the latter system, each successive group is double the speed of the preceding one ; thus group B is double the speed of Group A and so on.

The following table gives recommended settings for Ilford films and plates on both systems:-

	<i>Ilford</i>			<i>Ilford</i>	
	<i>Logarithmic</i>	<i>Ilford</i>		<i>Logarithmic</i>	<i>Ilford</i>
	<i>Speed Index</i>	<i>Group</i>		<i>Speed Index</i>	<i>Group</i>
Roll Films			Plates		
H.P.3 (HP)	32	F	H.P.3 (HP)	34	G
F.P.3 (HP)	27	D			
Selochrome (O)	30	E	Soft Gradation		
			Panchromatic (NP)	28	E
Miniature Films (35 mm.)			Special Rapid		
H.P.3 (HP)	32	F	Panchromatic (NP)	25	D
F.P.3 (HP)	27	D	Press Ortho		
Pan F (NP)	25	D	Series 2 (O)	31	F
			Selochrome (O)	30	E
Flat Films			Iso Zenith (O)	25	D
H.P.3 (HP)	32	F	Zenith	25	D
F.P.3 (HP)	27	D	Special Rapid	21	B
Hyperchromatic (O)	34	G	Ordinary	16	A
Selochrome (O)	30	E	Sub-standard Cine Films (16 mm.)		
Commercial			H.P.3 (HP)	32	F
Ortho (O)	27	D	Pan F (NP)	25	D

(HP) = Hypersensitive Pan.

(NP) = Normal Pan.

(O) = Orthochromatic.

ILFORD LIMITED

IPEM/A49/E

ILFORD

LONDON

Printed in England