



Correctly exposed photo-  
graphs by using the  
**IKOPHOT**



## The best companion

for your camera is certainly a reliable exposure meter such as the IKOPHOT. The IKOPHOT is not only attractive in appearance but is also extremely efficient. It is made by ZEISS IKON AG., STUTTGART, the manufacturers who have behind them the experience of decades in the design and construction of photo-electric exposure meters. No matter what type of film you use, black and white or colour, negative or reversal film or whether you photograph with daylight or artificial light, your exposures will always be correct.

The IKOPHOT is a handy instrument and its operation is simplicity itself. You can carry it about whenever and wherever you like, it is suitable for all types of film and camera. It will never let you down if you adhere to the advice given in these instructions. It will increase your pleasure in photography and decrease your expenditure on film.

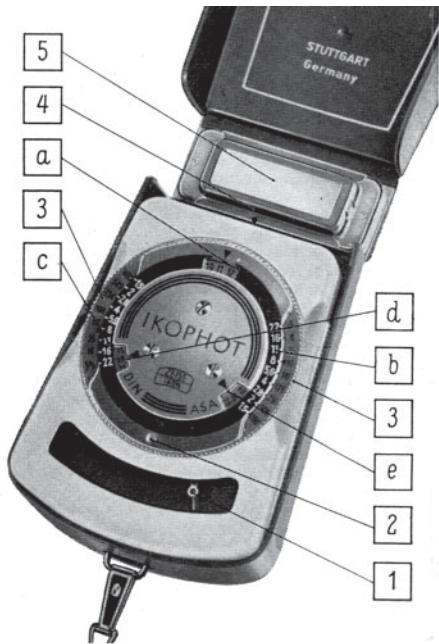
So, here is to good companionship and to better pictures!

## Adjusting the film speed

To start with: this operation is necessary only when a fresh film inserted into the camera has a speed different to that used before.

Turn the disc by means of button (2) until the film speed figure, denoted on the film package or the instructions for the film appears at the triangle mark of the DIN-window (d) or that of the ASA-window (e).

If the emulsion speed of the film in use is given in a measuring system other than DIN or ASA, use the corresponding values listed in the table on page 20. The bottom plate of the IKOPHOT also bears a table



### The scales on the IKOPHOT

- a The light values
- b Stops and shutter speeds (in accordance with the light values, grading  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ,  $\frac{1}{15}$ ,  $\frac{1}{30}$ ,  $\frac{1}{60}$  second, etc.)
- c Stops and shutter speeds (in accordance with the usual settings  $\frac{1}{2}$ ,  $\frac{1}{5}$ ,  $\frac{1}{10}$ ,  $\frac{1}{25}$ ,  $\frac{1}{50}$  second, etc.)
- d Film speeds in DIN degrees
- e Film speeds in ASA indices

### The operative components of the IKOPHOT

- 1 Follow-up mark and pointer
- 2 Button for setting the film speed
- 3 Milled disc to follow up the mark (1)
- 4 Photo-cell (behind the honeycomb disc)
- 5 Adaptor diffusion disc

of the EUROPEAN Scheiner degrees (see fig. on page 18).

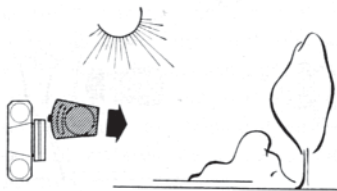
For colour films a definite speed rating is impossible, since all the measuring systems are based on black and white films. For this reason the film manufacturers abstain from giving a straightforward speed rating but use the expression "to be exposed like a film of . . ." In general these values may be used with confidence, but it is nevertheless recommended that tests should be made with different shutter speeds or stops to establish the correct speed of the colour film used with regard to your own IKOPHOT.

### The measurement

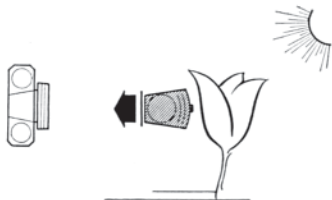
Measuring can be done in various ways.

Generally the measurement is tak-

en from the position of the camera towards the subject. The IKOPHOT, without the diffusion disc, should be held horizontally and so that its photo-cell (4) is pointing to the important elements of the subject to be photographed. When measuring a landscape, for instance, the IKOPHOT should be pointed towards the foreground and not towards the bright sky.



**At shorter distances,** particularly for close-ups the subject should be measured from as close a distance as possible. The ΙΚΟΡΗΟΤ (without the diffusing disc) should be held as close as possible to the subject without casting a shadow on it, however.



**For photographs against the light** or other very contrasty subjects it is essential to get sufficient details in the shadows. This can be obtained by using the incident light measurement. The ΙΚΟΡΗΟΤ with slipped-on diffusing disc should then be pointed towards the camera from the subject.

### The adjustment

Whatever way of measurement is used the result will be that the pointer deflects. Now turn the milled disc (3) with your thumb until the



follow-up mark (1) is bisected by the pointer (by looking from above). The measuring value is thus found

and can be read off from the  $\text{IKOPHOT}$  in any position.

### The reading

The shutter speeds should be read off which correspond to those on your shutter and are either on the right (b) or the left (c). The red ring shows the necessary stop, and directly adjacent to it is a golden ring giving the corresponding shutter speeds. Furthermore, the red triangle mark (a) of the  $\text{IKOPHOT}$  indicates the light value.

The shutter speed figures on the golden scale denote:

**on the right** (b) below  $\frac{1}{4} = \text{frac-}$

tions of a second ( $8 = 1/8$  sec.) upwards from  $1/2 =$  whole seconds;

**on the left** (c) above  $1/5 =$  fractions of a second ( $10 = 1/10$  sec.), downwards from  $1/2 =$  whole seconds).

The IKOPHOT can also be used to read off intermediate values which can then be transferred to the camera shutter. This is particularly important for colour exposures.

**When a filter is used** the values indicated by the IKOPHOT should be extended according to the filter factor. The IKOPHOT is then adjusted either to a lower light value,

a larger stop or a longer shutter speed. The increase in exposure time is

for filter factor $\times 2$	1 value
for filter factor $\times 4$	2 values
for filter factor $\times 8$	3 values

For other filter factors corresponding intermediate values should be set on the camera.

**For cinematographic shots** the exposure is determined by the speed at which the film passes through the camera. For the normal speed of 16 frames per second the necessary stop ( $f/\text{number}$ ) is found on the red ring on the right scales (b) opposite

the black triangle mark denoting  $\frac{1}{30}$  second as well as on the left scales (c) between the marks de-



noting  $\frac{1}{25}$  and  $\frac{1}{50}$  second. If the camera speed is altered the stop found in the same way must be

changed according to the following table:

- 8 frames per second: 1 stop smaller
- 24 frames per second:  $\frac{1}{2}$  stop larger
- 32 frames per second: 1 stop larger
- 64 frames per second: 2 stops larger

**If the light source is extremely weak (candle) the pointer of the IKOPHOT will not deflect, but a valuable indication may be obtained by pointing the IKOPHOT without diffusing disc from the subject to be photographed straight towards the light source. The exposure time thus found should be multiplied by 10.**



This method can be used only if a single, weak light source casts its light directly on to the subject.

### **The ever-ready case**

For all the various measurements the IKOPHOT need not be removed from its ever-ready case. The diffusing disc is accommodated in the lid. The disc (5) can be pushed sideways for use. The chain serves to fasten the IKOPHOT to your clothes or around your wrist (see ill. on front page). The necessary loop can easily be formed by means of the ring. Thus both hands remain free and the risk of losing the IKOPHOT is avoided.

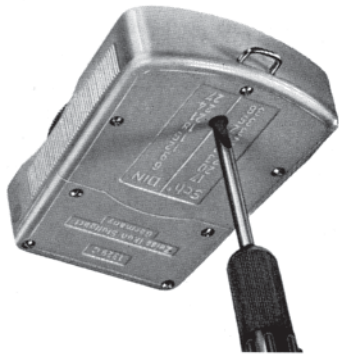
### **Adjustment**

When the IKOPHOT has been used for a long period its correct adjustment should be examined. For this purpose remove the IKOPHOT from its ever-ready case. Loosen the snap-hook on the chain and bend outwards the springy side-walls of the case. The IKOPHOT can then be removed.

The re-adjustment should be carried out in dim, not bright light. By turning the milled disc (3) the follow-up mark (1) is brought to its left stop. When the photo-cell is completely blacked-out (4) the pointer should be positioned on the left edge of the mark. If this is not



the case, rotate the adjusting screw on the bottom plate of the IKOPHOT (see ill.) until the pointer is in the correct position.



## Maintenance

The delicate movement used in the IKOPHOT is well protected against pressure, humidity and dust by the dust-proof hermetically sealed casing. To maintain the accuracy of the photo-cell, it should not be exposed to strong light for a longer period than necessary, nor to heat above 122° F (50° C) or strong direct sunshine. The honeycomb lens on the front should be kept clean (4).

And a final important piece of advice: Consult your photo-dealer, if you are in doubt about any photographic problems.

**Approximate equivalence  
of the various systems of film  
speed rating**

DIN in/10 <sup>0</sup>	Scheiner Europe	Scheiner USA	Weston	ASA Exp. ind.
10	21	14	5	6
11	22	15	6	8
12	23	16	8	10
13	24	17	10	12
14	25	18	12	16
15	26	19	16	20
16	27	20	20	25
17	28	21	24	32
18	29	22	32	40
19	30	23	40	50
20	31	24	50	64
21	32	25	64	80
22	33	26	80	100
23	34	27	100	125
24	35	28	125	160
25	36	29	160	200
26	37	30	200	250
27	38	31	250	320

*Improvements in design may involve small deviations from the description of the instrument as given in this booklet.*



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