

## USER INFORMATION

**ILFORD PINHOLE  
PHOTOGRAPHY KIT**

A HIGH QUALITY PINHOLE PHOTOGRAPHY KIT WITH CAMERA, FILM, PAPER AND EXPOSURE CALCULATOR

**CONTENTS**

HARMAN TiTAN Pinhole Camera  
 10 Sheets of 4x5" HARMAN DIRECT POSITIVE paper.  
 10 Sheets of 4x5" ILFORD MULTIGRADE IV RC paper.  
 10 Sheets of 4x5" ILFORD DELTA100 Professional film.  
 A pinhole exposure calculator. (Self-assembly)

**NB** The camera is designed to fit 4x5 film holders such as Fidelity holders. Holders are not included in the kit, but it is possible to obtain them via local or on-line Photo Dealers.

The camera is of a simple design, making it easy to use, but still enables the creation of high quality images in both landscape and portrait orientation. The pinhole itself is a high quality chemically etched type.

Images can be created as negative film images, or as positive black and white paper images using HARMAN DIRECT POSITIVE paper, or as negative black and white paper images using conventional photo paper such as ILFORD MULTIGRADE paper.

**CAMERA SPECIFICATIONS – AS SUPPLIED**

Focal length	72mm (2.8in)
Pinhole diameter	0.35mm (0.0138in)
F number	f206
Angle of view	97degree

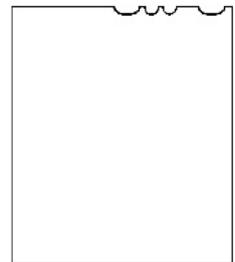
**ASSEMBLING THE CAMERA**

- The cone is attached to the body, by positioning the cone into the body grooves and then pushing the cone clips into the locking position.
- The pinhole is attached to the cone, by means of a bayonet type fitting turn clockwise to secure. The pinhole cover is a push fit and tethered to the camera body.
- Film holders slide into the film holder slot.

**USING THE CAMERA****Loading film holders**

Film holders need to be loaded with film or photographic paper before being placed into the camera film holder slot. To locate the film holder simply slide into the slot at the rear of the camera until it clicks into place.

**NB** It is important to ensure the emulsion is facing the correct way in the film holder. For paper viewed under safelight the emulsion is the shinier side. For film handled in total darkness notches allow you to find the emulsion side. The emulsion is facing the user when the film is held as shown opposite.



- If using the supplied ILFORD DELTA 100 Professional black and white film, film sheets must be loaded in total darkness.
- If using the supplied HARMAN DIRECT POSITIVE paper, a deep red safe light can be used.
- If using ILFORD MULTIGRADE paper, a deep brown or red safelight can be used.

Once film or paper is loaded – do not remove the holder slides until ready to expose.

Full details on suitable safelight filters, and how to load film holders - are shown in the ILFORD Pinhole Photography Kit Technical Information sheet on our website. [www.ilfordphoto.com](http://www.ilfordphoto.com)

**Calculating exposure times using standard exposure meters, and the pinhole calculator**

The HARMAN TiTAN pinhole camera as supplied, has an effective fixed lens aperture of f206; most light meters will not offer support for this aperture.

To enable a conversion of a normal light meter or camera reading, the ILFORD Pinhole Photography Kit supplies a pinhole exposure calculator.

The pinhole exposure calculator needs assembling - by following the instructions supplied on its cutout sheet.

A spare copy to print out can be obtained from our web site, if needed. [www.ilfordphoto.com](http://www.ilfordphoto.com).

Once the pinhole exposure calculator is assembled, it can be used in one of two manners:

# ILFORD PINHOLE PHOTOGRAPHY KIT

## Method 1 – Using a camera or exposure meter to attain initial light values

- Set a light meter or hand meter to the correct ISO film speed required. (Note, HARMAN DIRECT POSITIVE and ILFORD MULTIGRADE papers approximate to ISO 3, ILFORD DELTA 100 film is ISO100). Then take a meter reading of the subject to be photographed.
- Using the assembled pinhole exposure calculator dial, rotate middle wheel until the correct ISO speed appears in the ISO window slot. (Set only as reminder of the speed).
- Dial in one of the metered aperture and shutter speed settings (by lining them up together on the lower and upper wheels), e.g., it might be a setting such as f8 at 1 second.
- Keep the wheel dials fixed with the metered reading combination, then look at the aperture value that reads f 206 (shown in red text / by a red line). The exposure time opposite this is the actual corrected exposure time the camera needs. (Note: this will be a longer exposure time. In the above example, with ISO set at 100, the new time needed would be approx f206 10 minutes - as opposed to f8 1 second).

## Method 2 – Using the pinhole exposure calculator symbols to determine light values

If no camera or handheld metering is available, the pinhole exposure calculator has symbols on its outer wheel to represent most types of lighting conditions, i.e. six symbols.

Using the assembled pinhole exposure calculator dial, rotate the middle wheel until the required ISO film speed appears in the window slot.

- Ensure the two small wheel dials are held together to keep the ISO setting, choose the symbol which best represents the lighting conditions, and line up the green pointer (on inner wheel) against this symbol.
- Again, without moving the two small wheel dials, look at the f number value that reads f206 (shown in red text / by a red line). The exposure time opposite this is the correct time needed.

## Note – re reciprocity

The above determined exposure times may need some further adjustments in times, as typically if very long exposures are used (generally those over 30 minutes), it is possible that an additional compensation time to correct reciprocity failure may be needed, (i.e. film and paper speeds can slow – as a result of long exposures). Some trial and error testing may therefore be needed to determine any additional times.

## Note – re ‘pre-exposure’

If desired, it is possible to ‘pre-expose’ HARMAN DIRECT POSITIVE and ILFORD MULTIGRADE paper to reduce the contrast and shorten the exposure times.

Extensive details on how to do this are shown in ILFORD Pinhole Photography Kit Technical Information sheet on our website. [www.ilfordphoto.com](http://www.ilfordphoto.com)

## SHOOTING IMAGES WITH THE CAMERA

- It is advisable to mount the camera on a tripod in either portrait or landscape orientation.
- Ensure the pinhole cover is covering the pinhole, and then gently ease the loaded film holder into the camera holder slot until it locks in place. Do not remove the film holder slide until the camera is in its exact shooting position, and an image is ready to be exposed.
- Using the exposure time (calculated as detailed previously), pull out the film holder slide on the camera side of the film holder. Then, when ready to shoot - remove the pinhole cover from the camera, and immediately start to time the calculated exposure. As soon as the required exposure time has been reached – replace the pinhole cover and replace the slide into the film holder (black side out, so you know this one has been exposed) Repeat the procedure for the film holder’s other side, and for other holders as required.

## PROCESSING

Full details on safe lighting choices, chemistry choices, and the actual processing methods / times are shown within the Technical Information sheet for the ILFORD Pinhole Photography Kit, as well as individual film and paper Technical Information sheets (ILFORD DELTA 100 Professional, HARMAN DIRECT POSITIVE paper, and ILFORD MULTIGRADE paper) on our website.

[www.ilfordphoto.com](http://www.ilfordphoto.com)

## ADDITIONAL INFORMATION

Other accessories are planned to extend the scope of the pinhole camera – including cones of 110 and 150mm. Please check at [www.ilfordphoto.com](http://www.ilfordphoto.com) for latest updates.

## Specifications for 110 cone

Focal length	110mm (4.3in)
Pinhole diameter	0.44mm (0.017in)
F number	f250
Angle of view	73 deg

## Specifications for 150 cone

Focal length	150mm (5.9in)
Pinhole diameter	0.52mm (0.02in)
F number	f288
Angle of view	57degree

## NOTE

For extensive information which includes image guides to the camera components and how to assemble the camera, pre-exposure technique and detailed processing information - please refer to the Technical Information sheet for the ILFORD Pinhole Photography Kit on our website. [www.ilfordphoto.com](http://www.ilfordphoto.com)

HARMAN technology Limited, Ilford Way, Mobberley, Knutsford, Cheshire WA16 7JL, England  
[www.ilfordphoto.com](http://www.ilfordphoto.com)