

sinar®

INFO 35



View camera photography of the 1990s

CAP: Computer Aided Photography

Foto with SINAR e 4x5", SINARON s 180mm DB, f: 22, mixed lighting, t: 2 1/2 sec.
From composition to the exposure the whole job took about 15 min., including running explanations to the audience.

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Outlook to the end of the millenium

Is silver halide film reaching the end of its useful life in professional photography? Are still pictures facing a similar revolution with CCD sensors as video movies in the last ten years?

Much research and development is going into electronic image recording. Yet for high-quality single images, silver halide film is likely to remain the original exposure medium well into the next century. Electronic image sensors are still a

long way from the quality level of large-format sheet film. Electronics has, however, made considerable advances in subsequent processing of photographic originals. Scanners scan the original dot by dot (without the constraint of short real-time exposures) and electronically store the result at high information densities. Computers then take over to ready the image for photomechanical printing. This brings great benefits in productivity and enormous scope for image processing. Those advances are at least one reason for the higher quality demands

now being made on photographic originals. Even with perfect image processing, the final printed result can at best only match the quality of the original image. Computerised image manipulation may occasionally save unsharp, excessively contrasty, colour-distorted or otherwise faulty pictures. But this is expensive and the quality falls far short of that of a properly taken photograph. In its role of producing high-quality originals, the view camera must therefore meet even higher requirements.

Demands facing photographers – and large-format view cameras – in the 1990s

Originals of better definition and resolution

Modern view camera lenses such as the SINARON range are designed and made to close optical and mechanical tolerances. They can thus fully match the resolution of the latest film generation. But this is subject to certain conditions:

- The ground glass screen plane must coincide very closely with the film plane.

The solution:

The SINAR 4x5" precision sheet film holder holds the film's emulsion side flat and locates it within ± 0.03 mm of the ground glass screen plane.

- Every camera movement directly involved in image sharpness (focusing, swings and tilts) must permit highly precise setting.

The solution:

The electronic sensors of the SINAR e permit settings to the nearest 0.05 mm and the nearest 0.1° of arc.

- Whenever possible, the working aperture should be between $f/16\frac{1}{3}$ and $f/22\frac{2}{3}$ – smaller only in exceptional cases.

The solution:

The 'cluster program' for object points with the SINAR e computes the optimum

depth of field wedge and usually allows a working aperture one to two stops larger.

Boosting productivity

Commercial photographers are under constant pressure of deadlines. It is not easy to keep producing outstanding work with one eye on the clock; you need a camera that takes over the technical figuring.

The solution:

The computer program for focusing and exposure with the SINAR e.

Reproducibility

You may like to keep a set standing until you know that the shot was right. Yet you often have to repeat a setup and shot – either immediately or months or years later.

The solution:

The SINAR e program for storing settings on a diskette.

Meticulous creativity

With complex setups, camera settings become a painstaking quest for a perfect image on the focusing screen. Once that is found, no one must touch the camera! The solution:

The SINAR e image control program for any image scale, free perspective choice, and indication of utilised lens coverage.



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Tone values, exposure control and best reproduction in print

When shooting, you often approach the right exposure by successive approximations via innumerable instant print tests. And the final shot still needs bracketing exposures.

The solution:

The SINAR e exposure program with its visible display of tone values and brightness range.

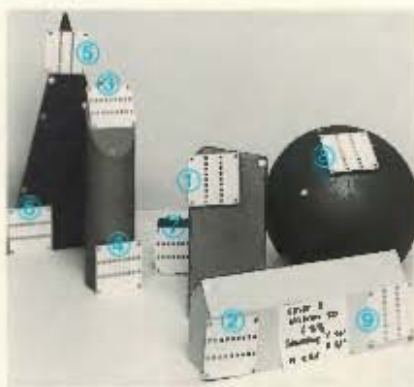


Fig. a: Exposure with SINAR e

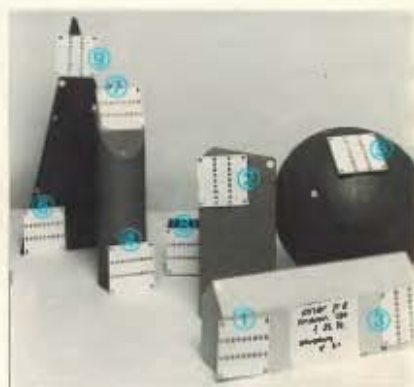


Fig. b: Exposure with SINAR p2

Quality comparison with a studio setup

Fig. a:
SINAR e setup
Exposure data:
210 mm SINARON s lens
4.4° vertical tilt
2.8° horizontal swing
f/16^{2/3}
Image scale 1: 8.5

Fig. b:
SINAR p2 setup
Exposure data:
210 mm SINARON s lens
4° vertical tilt
f/32^{1/3}

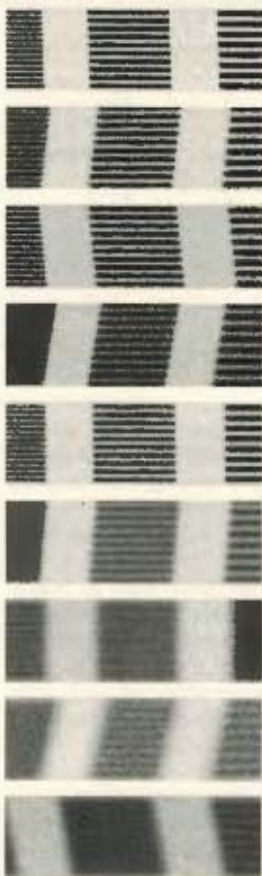
Enlargements of the resolution target images, set out in sharpness sequence from 1 to 9 with indication of percentage sharpness (100% = sharpest).

The results summed up:

- Computer-controlled location of depth of field wedge for best sharpness distribution permits 1²/₃ stops larger aperture.
- Using the optimum working aperture yields an average 10% higher resolution on the film.
- Setting up the camera is three times as fast - and positive.

Comparison of resolution

SINAR e



100%	1	100%
95%	2	85%
85%	3	80%
80%	4	70%
70%	5	50%
70%	6	45%
45%	7	45%
42%	8	42%
40%	9	20%
69.7%	1-9	59.7%

SINAR p2



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The practical test

To demonstrate the main features of SINAR e operation against the conventional approach, 35 German professional photographers were invited to the Kasper Studio in Rlelasingen (W. Germany) to witness a shooting session of three assignments. For this occasion, organised on June 12, 1990, Kasper prepared three demanding setups: a table-top group, an interior and a closeup product shot. With no further preparation, H. C. Koch, equipped with a SINAR e, had to get on with it.



Table-top group

The job:

The arrangement of jars has to fill the frame and record sharp all over. The background should show just recognisable detail. The glass jars at the right are to appear, enhanced perspective, slightly larger than those at the left. Lighting is by flash. Required is a transparency suitable for reproduction in print.

Handled with the 4x5" SINAR e, with 210 mm SINARON s lens in DB auto-aperture mount

How shooting differed from the traditional way:

- Entering all object points ensured reliable sharpness with minimum stopping down - $f/22\frac{2}{3}$!
- Perspective alternatives were easy to try out and judge.
- No bracketing exposures were needed - just a single original transparency on Kodak Ektachrome 100 P film.



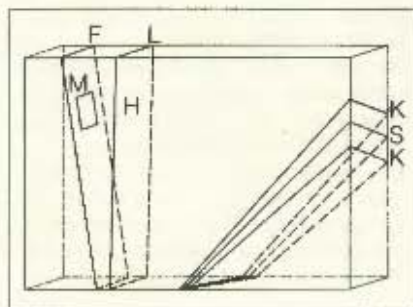
- Fast shooting: From composition to the exposure the whole job took about 15 min., including running explanations to the audience.

The interior (see cover)

The job:

The fantasy setup of chairs in their frames should fill the image area and appear without converging verticals. The gap between the walls, lit from behind by flash, must show just visible highlight detail. The somewhat darker foreground wall is to give depth to the picture; the spotlighting on the chairs should convey the artificial-light atmosphere. The strip of wall near the bottom should record in medium brightness. All chairs must appear in bright red detail; the foreground chair can be a little darker.

Handled with the 4x5" SINAR e, with 210 mm SINARON s lens in DB auto-aperture mount, mixed lighting



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How shooting differed from the traditional way:

- For setting up, the photographer focused in turn on all image points that had to be sharp; set the image standard to vertical, and followed the computer program to adjust the horizontal-axis tilt and vertical-axis swing on the lens standard. Surprisingly, this yielded a working aperture as large as $f/22$. The traditional way – especially with large setups – rarely uses swings or tilts at all. That, however, requires more extensive stopping down, which calls for twice as much light for each f-stop smaller.
- You can assign precise tone values to specific subject areas. The grey strip of wall was read as a midtone, and yielded an exposure time of $2\frac{1}{3}$ sec. (with automatic reciprocity failure compensation). The background visible through the gap between the walls was read in information mode, and the fill-in flash adjusted accordingly to bring that point to a luminance level 2 EV above the midpoint brightness. The intended tone values of the chairs, wall and floor were checked with further info mode readings.
- Only one exposure was made, on Kodak Ektachrome 100 P film.
- Once the job was explained, the photographer needed just 15 min. to shoot it – including the commentary for the observers.
- Thanks to exact readings of tone values and brightness range, no bracketing exposures were needed here, either. Automatic allowance of reciprocity failure in the computation eliminated any need for trial exposures.



Closeup

The job:

The art director specified a grouping of lipsticks, to be arranged in natural perspective in front of a background showing just visible tone. The lipsticks are to be at about 1:1.5 reduction, the whole shot to be an original for reproduction in print. Handled with 4x5" SINAR e, with 300 mm SINARON s lens in DB auto-aperture mount.

How shooting differed from the traditional way:

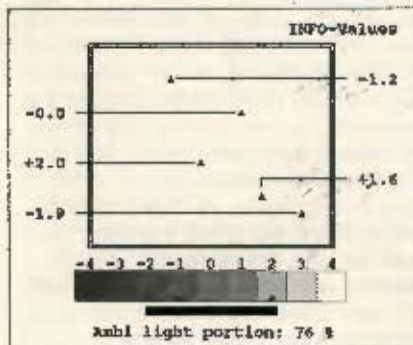
- Setting up the camera to a specified image scale – normally tricky with closeups – is particularly straightforward with the SINAR e: the computer program indicates the exact distance for the required scale.
- Focusing: The significant subject points to be sharp were focused and perspective adjusted by the movements of the rear standard.
- The resulting optimum swing/tilt settings permitted an $f/22\frac{1}{3}$ aperture. Alternative perspective adjustments and composition changes were easy, too. This easy way of perspective control within the whole of the lens' image

field encourages the use of this creative approach. The monitor all the time clearly indicates the optical limits.

- As you gain up to two f-stops with the SINAR e, you can in such closeups quickly cover even complex setups extending in depth and directly see whether an intended arrangement is feasible with acceptable image quality.
- The cluster program for object points clearly indicates possible physical or optical obstacles to cover any portion of the subject – and displays the available adjustment range to ensure a perfect picture.
- Exposure readings in the film plane offer complete control of the tone values. They yield perfect exposures, with controlled brightness range even in closeups, without requiring bracketing exposures. Exposure is straightforward with both reflected lighting and transillumination.
- Here again, a quarter of an hour covered the whole job from setting up to the exposure – complete with explanations to the watching photographers.

Contrast readings of the brightest and darkest object points required to show detail helped to keep the brightness

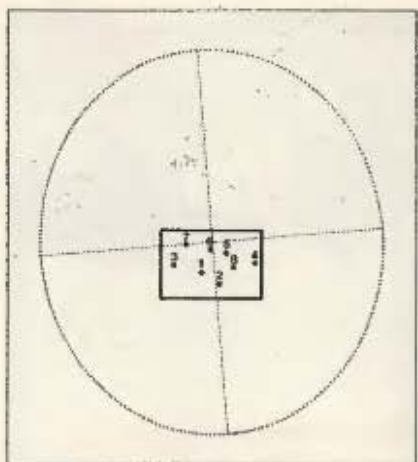
Info-Metering mode:



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range in all three cases within the permissible maximum of four f-stops. For the benefit of the engraver and litho production these points were marked (max. ± 2 stops). That way the originals could be scanned in a standardised run with no need for corrections. That improved reproduction and in turn saved some 40% in process costs.



Anything can be certified – but it's true: On June 12, in the presence of an expert audience, H. C. Koch shot the three jobs in record time and in outstanding quality.

H. C. Koch

Rudolf-Diesel-Strasse 2
D-7703 Rielasingen

Turning to Zero

Please adjust the lens-standard such that the values opposite become 0!

1 x Ok : Go to light reading
2 x Ok : Go to shutter

Working Apert.: 22 + 1/3
Sharpness req.: Normal

Lens angle : 72.0 °
Image angle : 28.3 °

Reprod. scale : 1 : 1.5

CLUSTER OF FNPTS

Lens-standard:

No. of points: 10

Tilt

+13.5

Swing

-16.5

Lateral shift

Vertical shift

Coarse tilt

Focus

-8.4

Economic aspects

The following advantages balance the investment cost of a SINAR e camera:

- Improved quality of the results
- Perfect control of the three-dimensional object space and its perspective rendering on the flat film
- Need for less light power by the use of larger lens apertures
- More scope for creative image control
- Film savings
- Increased productivity and hence time saved by easier camera settings, exposure measurement and lighting control

- Convenient data storage permits easy reshooting.

View camera photographers should evaluate these advantages of computer-aided photography and set them against the cost of a SINAR e camera. If you fully write off this investment over five years, the weekly financing cost at normal interest rates is about SFr. 120.- to 160.-. Irrespective of currency, this is equivalent to the cost (including processing) of ten sheets of 4x5" colour film. The practical demonstration shows that working with the SINAR e quickly saves that sum many times over!

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