

MINOX LX Owner's Manual

Inevitably you will find some technical terms in this booklet. So before you start reading the Manual, fold out this and the last page. Then you can see at a glance which particular dial, window or other part of the Minox LX the text refers to.



MINOX GmbH · Optische und Feinmechanische Werke · Postfach 60 20 · D-6300 Giessen 1

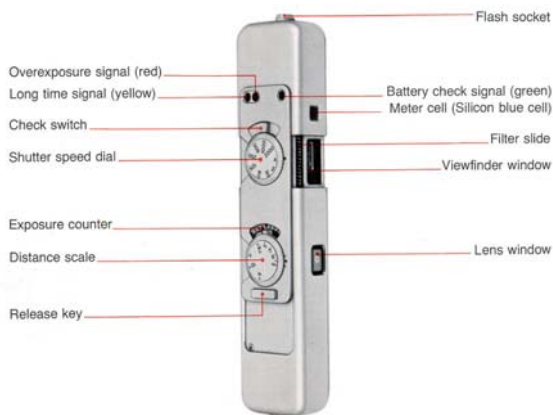
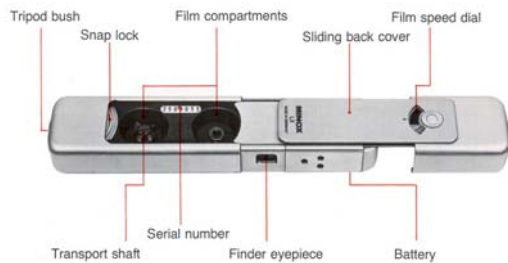


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Technical data

Camera type: Minox LX ultraminiature camera
 Minox model Nos.:
 10.610 chrome finish, metric distance scale
 10.620 chrome finish, feet scale
 10.630 black finish, metric scale
 10.640 black finish, feet scale
 Negative size: 8 x 11 mm
 Films: Minox 8 x 11 mm films in double daylight cartridges for 15 or 36 exposures (8 x 11-15 or 8 x 11-36).
 Film advance: Push-pull rapid wind, operates only after shutter is released.
 Film pressure plate: Closing force approx. 7.5 N with camera in shooting readiness; film gate opens during film advance and loading.
 Shutter: Electronically controlled double blade shutter. Manual setting range 1/2000 to 1/30 second. Automatic control range with shutter dial set to A (daylight exposure automation) 1/2000 second to approx. 15 seconds; with scale set to $\frac{1}{2}$ (flash exposure automation) from 1/2000 to 1/30 second.
 Meter cell: Silicon photo diode (SBC)

Film speed: Adjustable from 12 to 400 ASA (12 to 27 DIN)
 Light signals: Yellow: slow speed (automatically selected exposure time longer than 1/30 second); Red: overexposure (use neutral density filter); Green: battery check.
 Battery: Single 5.6 volt battery; Mallory PX 27, Ucar EPX 27 or Varia 7150.
 Lens: 15 mm f/3.5 Focusing range infinity to 8 inches or 20 cm. Full aperture only.
 Filters: UV filter as permanent lens window. Approx. 4 x ND filter can be switched into light path.
 Lens hood: Permanently built in.
 Finder: Bright-frame finder with automatic parallax compensation. Red warning signal for ND filter.
 Exposure counter: Counts backwards from 36 to 0. Short-film section from 15 to 0.
 Flash contact: X contact
 Tripod bush: Built in (1/4")
 Length closed: 10.8 cm (4.25")
 Length open: 12.4 cm (4.9")
 Width: 2.8 cm (1.1") Height: 1.6 cm (0.6")
 Weight: 88 grams (3.1 oz.) without battery or film
 98 grams (3.5 oz.) with battery, without film
 100 grams (3.5 oz.) with battery and film
 Made by Minox GmbH,
 D-6300 Giessen 1, West Germany



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Projection

Minox HP 24: Automatic magazine slide projector for 3 x 3 cm Minox slides. Fitted with 35 mm Minox Minogon f/2.7 lens and 24 volt, 150 watt tungsten-halogen lamp. Built-in fan, remote control and mains lead. Levelling by self-clamping drop-down foot. With carrying handle and tape control socket.

Minox HP 24 Autofocus: AS HP 24 but in addition with autofocus system for automatic slide refocusing.

Minotact (not illustrated): Semi-automatic projector for 3 x 3 cm Minox slides. With 35 mm Minostar f/2.7 lens and 12 volt, 100 watt low-voltage lamp.

Home processing aids

Minox daylight developing tank: Develop your black-and-white films without a darkroom. Needs no special knowledge. Next to enlarger in illustration.

Minox model 2 enlarger: This black-and-white enlarger preserves the full definition of the Minox negative even in the enlargement.

Other home processing accessories: Minox special ultra-fine grain developer, Minox film sleeves.



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Congratulations!

Your new Minox LX is the latest top model of the famous 8 x 11 mm Minox ultraminiature camera range.

You don't need to know much Minox technique to make good pictures. In each section the most important points are summed up in **bold type**. For more details read also the paragraphs below them.

The Minox LX works even without a film – so you can familiarise yourself with Minox LX operation before you start shooting.

While you can operate the Minox LX controls without a film, it does need a battery to power the electronic shutter and automatic exposure control. That's why we start with inserting the battery on the next page.

So now read on and get acquainted with Minox LX photography. Have fun with your Minox LX!

1



The battery

The Minox LX only functions with a correct battery (Varta 7150, Ucar EPX 27 or Mallory PX 27) in the battery compartment (check correct polarity). Don't use spent or old batteries.

Inserting the battery

Pull the camera fully open, depress the snap lock in the base and pull open the sliding cover. The battery compartment is now accessible from the camera top.

Firmly rub both battery contacts clean against some rough fabric (e.g. your coat sleeve). Raise the black battery compartment tongue. Insert the battery the correct way round (note polarity marks on tongue and battery) so as to permit easy removal by pulling the tongue.

A click on pressing the release does *not* signify correct shutter operation. Use the battery test to check correct battery function and correct insertion. If a battery appears to fail too soon, try removing it, firmly rubbing down its contacts and re-inserting it.

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Binocular shots

Minox binocular attachment: Clamps the 8 x 11 mm Minox to binoculars as a lens attachment. The latest version of the attachment (with two cable release sockets) can be used with all 8 x 11 mm Minox models. The older version (only one cable release socket) is not usable with the Minox LX as that has a differently located release key.



Document copying

Minox copy stand: Four-legged collapsible stand, can be set up for size A4, A5 or A6 originals and for 8 inch or 20 cm subject distance. Illustration on opposite page, left.

Minox document copying film: Agfaortho 25 professional, 36-exposure cartridge. Special black-and-white copying film, yields exceptionally high resolution and high contrast. You can control the contrast by tank development in special document copying developer.

Minox M811 microfilm reader: For reading 8 x 11 mm microfilm negatives (mounted in Minox document copying film sleeves with blue cover). Magnification: 23 x linear. Screen 320 x 315 mm (12.6 x 12.4 inches) large, anti-reflection coated. Rotating size A6 film carrier with two-way sliding tracks. Brightness of 15 volt, 150 watt tungsten-halogen lamp adjustable in four steps. For illustration see opposite page, right.

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Battery test

You can check the battery with the camera closed or open, but not released. Push the check switch, next to the shutter speed dial, fully towards the camera front and hold for about one second. The green signal must light up.



Battery test. The signal lights up green.

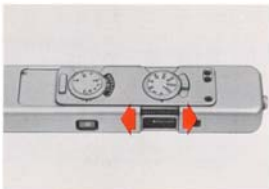
If the green signal lights up at first but fades or goes out within a second, the battery is nearly exhausted. Replace as soon as possible.

If the green signal does not light, the battery is fully spent or too old (remove immediately from the camera), or was inserted the wrong way round.

Check the battery every time you load a film or when you haven't used the camera for a week or more. But don't check the battery too often or for too long – that also exhausts it.

The battery test does not indicate how long it will still last. Preferably fit a fresh battery at least once a year, even if the battery test still shows sufficient power. Remove even a good battery from the camera if you are likely to store the latter unused for long periods.

3



Opening the camera

To shoot – or to view the subject – pull the Minox LX fully open.

Tripod shots

You can mount the Minox LX on any normal tripod by the built-in tripod bush.

LX cable release bracket: Permits attachment of a cable release to the Minox LX. Advisable for all tripod shots.

Minox pocket tripod: Rigid tripod with built-in ball-and-socket head and cable release. Can be used as a table tripod, chestpod or wall support. To close it, insert the legs in each other; the tripod is then hardly larger than a pencil.



The Minox LX can shoot only when open. When you close the camera, the lens window and viewfinder are protected inside the body and the shutter release is locked. You can open the Minox LX and view through the finder even if you are not yet sure whether you want to expose. Closing the camera without releasing it wastes no pictures.

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Minox accessories

Minox 8 x 11 mm films

For colour prints:

Minocolor 2 film, 80 ASA, 36- and 15-exposure cartridges.

For colour slides:

Minochrome 64, 64 ASA, 36 exposures. Processing (but not framing) included in purchase price.
Minochrome 64 R, 64 ASA, 36 exposures. Purchase price includes processing and framing in 3 x 3 cm glass-less plastic frames.

For black-and-white prints:

Agfapan 25 Professional, 25 ASA, 36- and 15-exposure cartridges

Agfapan 100 Professional, 100 ASA, 36- and 15-exposure cartridges

Agfapan 400 Professional, 400 ASA, 36- and 15-exposure cartridges

Agfaortho 25 Professional. Special document copying film, 36-exposure cartridges.

Flash unit and flash accessories

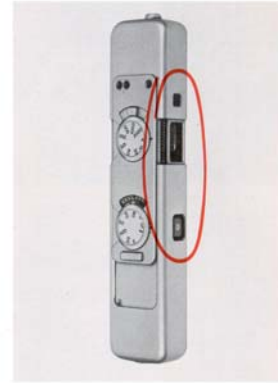
Minox FL 4: Flash holder for electric flash cubes (illustration on page 23). Fits all Minox 8 x 11 mm cameras with flash socket. Exclusively with the Minox LX: Automatic flash exposure controls the exposure of flash shots with the FL 4.

Minox ME 2 adapter: Fits the Minox FL 4 flash holder to cameras other than Minox ultraminiatures. The camera must have a standard hot shoe or flash socket.

Minox hot shoe: For direct connection of electronic flash units to Minox 8 x 11 mm cameras. Only suitable for flash units with hot shoe fitting. Illustration on page 25.

The three "eyes"

The front of the Minox LX shows – from top to bottom in the illustration – the silicon blue cell window (the metering cell of the automatic exposure control), the finder window and the lens window. Take care not to obstruct these three windows with your fingers while shooting. Keep the lens window absolutely clean – that is vital for sharp and brilliant pictures.



If you cover the meter window as you shoot, you get wrong exposures.

To check whether the lens window is clean, slide in the neutral density filter (page 12); any dirt or fingerprints will immediately show up against the dark filter. Preferably clean the lens window with a clean rag wound round a matchstick. Chemists' cotton-tipped swabs are also useful (see page 27).

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Holding it steady

Hold the Minox at eye level firmly, but relaxed, with both hands. Keep the thumbs against the camera base, the other fingers on top. Keep the fingers away from the front to avoid obstructing any of the windows.



The pictures show suitable camera holds for horizontal and upright shots.

If you cover the lens window while shooting, you will get a shapeless shadow covering most or all of the picture. If you obstruct the small meter window the exposure becomes too long.

For the steadiest hold, press both hands against your head and press the camera ends against your thumbs – as if you were trying to bend the Minox. The Minox LX remains in its ever-ready case for shooting. Fold over the hinged section of the case flat against the fixed section.

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Care of the Minox LX

Lens window: Whenever you change films, take the opportunity to check the window for possible fingerprints or other marks (slide in the neutral density filter to show up marks); if necessary clean the window carefully.

Housing: Clean with a soft rubber eraser. Never use cleaning fluids.

Film compartments: When loading, blow out the empty film compartments. Dust particles may scratch the film.



Clean the lens window with a cotton swab – or with a clean rag wound round a matchstick. Slide in the neutral density filter to show up soiling and marks.

A hint for the seaside: Salt water getting into the camera rapidly corrodes the internal mechanism. To save the camera, remove the film and immediately place the open camera into warm tap water. Let it cool there, shake out the water, dry the camera near a heater and rush it to the Minox works or appropriate Minox agency for servicing.

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The ever-ready case

Attach the snaphook of the measuring chain to the eyellet of the small lock on the ever-ready case. Push the camera into the case with the tripod bush first (scales on top), push the chain eyellet into the slot of the lock like a screwdriver and screw the lock clockwise into the camera's tripod bush, thus securing the camera in the case. You only need to remove the cover from the case to change the film or the battery.

To secure your Minox LX against loss, attach the fastening ring of the measuring chain to a button, belt loop or buttonhole.

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Taking the picture

Once you have framed the view as you want it within the brightline finder frame, gently press the release key – without moving the camera.

Gentle pressure on the release key is enough to trigger the shutter.

During releasing hold your breath and take the camera from your eye only after you have heard the shutter close. (There are two soft clicks – with short exposure times they sound like a single click.)

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The circle in the lens window means your Minox is ready to shoot.

The push-pull rapid wind

To get your Minox LX ready for the next shot push the camera closed and pull it open again. This advances the film and tensions the shutter. The film is however only advanced if you have released the shutter before closing the camera.

Always push and pull the camera movement all the way.

A small circle in the lens window indicates that the Minox LX is tensioned and ready for shooting. After the exposure the circle disappears; so push the camera closed and pull it open again for the next shot. When you have finished shooting, close the Minox and put it in your pocket.

For quick shooting sequences push and pull the Minox as fast as you like – it can stand it.

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As an electronic flash has a much shorter duration than the flash of a cube, the automatic flash exposure control cannot close the shutter before the electronic flash is over. So even at the $\frac{1}{2}$ shutter dial setting, you generally utilise the whole light output of an electronic flash.

The automatic flash exposure control at the $\frac{1}{2}$ setting closes the Minox LX camera shutter after about 1/300 second if the flash of the electronic unit would yield a correctly exposed or overexposed picture. The shutter closes after about 1/30 second if the flash is inadequate for a correct exposure.

Apart from the $\frac{1}{2}$ shutter speed dial setting you can for electronic flash shots select any of the fixed time settings from 1/30 to 1/500 second.

Computer flash units with automatic flash duration control can be used with the Minox LX – including at the $\frac{1}{2}$ shutter speed dial setting – if the flash unit provides a correct exposure with the film speed used and at an aperture of $f/3.5$ (or approx. $f/4$). Check the instructions of your flash unit.



Hot shoe adapter (here on a Minox C)

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Automatic ranges with flash cubes

ASA / DIN	Approx. distances for automatic exposure	
	Without ND filter	With ND filter
25 /15	1.0 – 3.0 m 3 – 10 ft	0.5 – 1.5 m 1½ – 5 ft
64–100/19–21	2.0 – 6.0 m 6 – 20 ft	1.0 – 3.0 m 3 – 10 ft
200 /24	3.0 – 9.0 m 10 – 30 ft	1.5 – 4.5 m 5 – 15 ft
400 /27	4.0 – 12 m 12 – 40 ft	2.0 – 6.0 m 6 – 20 ft

Distance ranges apply to rooms of average ceiling and wall reflectivity.
If for any reason you want to expose with flash cubes but without automatic flash exposure control, set the shutter speed dial to 1/30 second. You then always utilise the full light output of the flash cube.

Electronic flash

Preferably mount electronic flash units with contact foot in the Minox hot shoe attachment (see illustration) for fitting to the Minox LX.

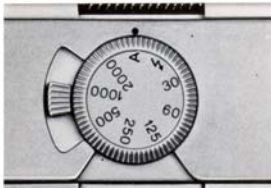
Setting the film speed

Set the speed of the film you are using on the film speed scale in the camera base. Depress the milled button and turn it to bring the ASA or DIN speed rating of the film opposite the arrow index on the window rims. (Every Minox film packing carries both ASA and DIN values.)
To save space the scale carries figures for every third step only; intermediate steps are marked by dots (e.g. 64 and 80 ASA between 50 and 100 ASA).



Film speed scale, set here for 80 ASA or 20 DIN.

Too high an ASA or DIN speed setting yields underexposed shots, too low a setting overexposed pictures. You can also expose deliberately for longer or shorter than indicated by the meter. For double the exposure time set the film speed dial to half the ASA value or 3 DIN lower. To halve the time, set the film speed to double the ASA value or to 3 steps higher on the DIN scale. See page 28 for a list of Minox 28 x 11 mm films.



Camera set to automatic daylight exposure control

Automatic daylight exposure

For daylight shots (or artificial light other than flash, see page 23) set the shutter speed dial to A (automatic). This controls the exposure automatically between 1/2000 second and about 15 seconds.

The up-to-date automatic exposure control of the Minox LX uses a silicon blue cell (SBC) and an electronic shutter. This provides a long stepless control range with rapid and reliable response even to abrupt lighting level changes.
The automatic system controls the correct exposure during the actual shot. For deliberate longer or shorter exposures adjust the film speed setting before you take the picture (page 9).
The automatic system on the Minox LX controls the exposure time. As with all Minox ultraminiature cameras, the lens aperture of the LX remains constant (see page 16).
The Minox LX reading is centre-weighted: it depends much more on the brightness in the centre of the view than in the corners.

Flash shots

The Minox LX can take flash shots with any type of flash unit. A particularly handy unit is the special Minox FL 4 flash holder for electric flash cubes (see illustration) – not only because of its small size (2 x 3.2 x 5.4 cm) but also because of a special feature of the Minox LX: automatic flash exposure control.



Minox FL 4 flash cube holder

Automatic flash exposure

For flash shots set the shutter speed dial to the flash symbol $\frac{1}{2}$ (automatic flash exposure control).

Minox FL 4 with flash cubes

Within certain distance ranges, determined by the film speed, the Minox LX automatically controls the exposure with flash cubes. Once you have set the shutter speed dial to $\frac{1}{2}$, the silicon blue cell of the Minox LX measures the flash illumination reflected from the subject and closes the camera's electronic shutter as soon as the meter has recorded the correct exposure. The longest time is however 1/30 second.



Automatic flash control setting

Unloading

After the last exposure make two "blind" exposures and advance the film each time. This moves the exposure counter to the red dot between 0 and 36. Open the sliding back cover. The cartridge jumps up by a few mm and is then easily removed with a fingernail.

Immediately wrap up the exposed film in black paper or the black plastic container. The exposure counter setting with the red dot between 0 and 36 for removing the exposed film is also the load setting for a 36-exposure cartridge. So you can immediately reload a new 36-exposure film without advancing the exposure counter. If the next film to be loaded has 15 exposures, first advance the exposure counter to the red index at No. 17 (see page 20) before loading the film.

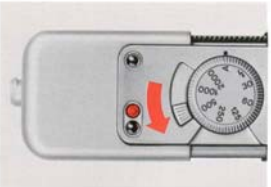
Long time signal

In poor light you can check before you shoot whether the exposure time is likely to be longer than about 1/30 second.
Set the shutter speed dial to A (automatic). Point the camera at the subject at waist level. Push the check switch next to the speed dial fully towards the rear of the camera.
If the yellow slow speed signal lights up with the key fully pushed back, the exposure time is longer than about 1/30 second. That means greater risk of camera shake.

With times shorter than 1/30 second, the slow speed signal still blinks before the key reaches its end position – the "blink" is about the length of the automatically set time.
You can operate a slow speed check with the Minox LX closed, opened or tensioned. If you have already released (no circle in the lens window) just push the camera closed before operating the slow speed check. You can still take pictures in poor light: either use the Minox pocket tripod (page 29) or shoot with flash (page 23).
To avoid excessive battery drain, operate the slow speed check only briefly.



Slow speed check. The signal lights up yellow.



Overexposure signal. If it lights up red, slide in the neutral density filter.

Overexposure signal, ND filter

Very bright scenes (beach or high mountain subjects with brilliant sun) can on a fast film lead to overexposure even with 1/2000 second.
To check, point the camera at the subject, and push the check switch next to the shutter speed dial fully towards the camera back (as for the slow speed check, page 11). If the red signal lights up, you risk overexposure.

To avoid that, slide the neutral density (ND) filter in front of the lens by the filter slide above the finder window. Push this fully towards the lens window.

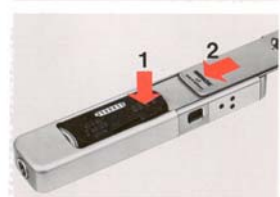
A red mark in the top right finder image corner is a reminder that the ND filter is in position.

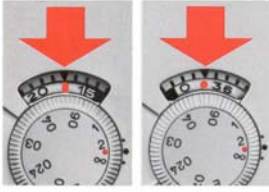


Sliding the ND filter into position.

The overexposure signal again operates with the camera closed or with the camera open, but not released. Operate it only briefly to save battery current.
The neutral density filter increases the exposure about 4 times. The exposure control automatically allows for this when the ND filter is in position.

Very occasionally the cartridge may drop flush into the camera at the sprung end only but not at the other end, thus blocking the sliding cover. This means that by chance the key in the cartridge core exactly hit the transport shaft prongs instead of sliding past them. To remedy this (not a malfunction), lift out the cartridge again and slightly turn the three-pronged shaft with your finger tip.





Loading the film

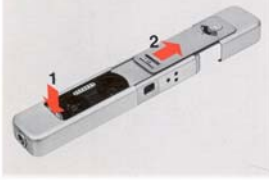
Always load (and unload) the film in subdued light – the shade of your body if necessary – and never in sunlight. Keep opening, releasing and closing the camera until the exposure counter arrives at the load setting.

The load setting for 15-exposure films is the red mark at No. 17 (illustration far left). The load setting for 36-exposure films is the red dot between 0 and 36 (left).

Depress the back cover snap lock in the camera base and fully pull out the sliding cover (bottom left). The film compartments are now accessible. Drop the Minox cartridge into the camera, push down and slide the cover over it, then close the cover to engage.

Open the camera, release and close the camera twice in succession. This moves the exposure counter to its start position: No. 36 for 36-exposure films and No. 15 (at the beginning of the black-and-white scale) for 15-exposure films.

Remember also to set the ASA speed of your film on the film speed dial (page 9).



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Snapshot setting: depth of field from 6 feet to infinity (above) resp. from 2 metres to infinity (below).



Focusing and depth of field

The distance scale is calibrated in feet and inches (e.g. 1' 6" = 1 foot 6 inches) or in metres. For specific distances set the distance scale to the large black dot.

The two smaller dots indicate the extent of the depth of field on the distance scale. For instance with the snapshot setting to the red dot (approx. 12 feet or 4 metres) the depth of field extends from 6 feet (2 metres) to infinity (=).

For views with no significant item nearer than 12 feet or 4 metres from the camera, shoot at the infinity (=) setting. The sharp zone then extends backwards from 12 feet or 4 metres (the red dot mark).

For medium distances you can use not only the snapshot setting (6 feet or 2 metres to infinity) but also other settings of extended depth of field. Thus at 6 feet or 2 metres the depth extends from about 4 to 12 feet or 1.3 to 4 metres (useful for flash shots). Halfway between 3 and 6 feet (1 and 2 metres) you get a sharp zone from 3 to 6 feet (1 to 2 metres). For close-ups between 8 and 24 inches (20 and 60 cm) use the measuring chain (see next page).

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The exposure counter

The exposure counter or frame counter indicates the number of exposures you have left on the film.

When you load the film set the counter to the appropriate start position. There are Minox films for 36 exposures and for 15 exposures. The counter scale for the short 15-exposure film is marked in white on black.

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No aperture settings

The aperture of the 15 mm Minox f/3.5 lens is fixed at its full opening. So the camera has no aperture scale.

The exposure is controlled only by the shutter speed. In view of the full aperture this is always comparatively fast. Yet you have plenty of depth of field – for instance from about 6 feet or 2 metres to infinity at the snapshot setting.

The ultraviolet filter

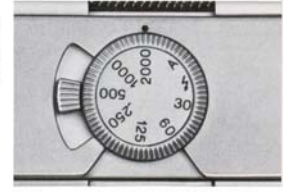
The glass window in front of the lens is an ultraviolet absorbing filter to prevent loss of definition in colour and black-and-white shots – also colour casts in colour transparencies – when the prevailing daylight contains a lot of UV radiation.

The UV filter does not increase the exposure time.

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Manual exposure settings

You can set exposure times from 1/2000 to 1/30 second manually without using the automatic exposure control. In this case turn the shutter speed dial away from "A" to the required time. The figures indicate fractions of a second (e.g. 30 = 1/30 second).



Shutter speed set manually to 1/2000 second.

Automatic control sets a continuous time range. With manual control you can set only the values on the dial. If you happen to set the dial between two marked times, the shutter operates at the nearest adjacent speed. The Minox LX, unlike the previous Minox C, needs no manual exposure settings for flash shots as the LX provides automatic flash exposure control (set the dial to the flash symbol, see page 23).

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Close-ups with the measuring chain

At close range between 8 inches and 2 feet (20 to 60 cm) you have very little depth of field. So use the measuring chain on the ever-ready case to establish the exact distance. With the chain held taut, each bead matches an engraved distance setting on the scale: first bead for 8 inches, second bead 10 inches, third bead 1 foot, fourth bead 1 1/2 feet, full chain length 2 feet (on metrically scaled cameras 20, 24, 30, 40 and 60 cm respectively).



Measure the distance with the chain and set the distance scale, then hold the appropriate chain bead once more against the subject to be sure of the correct distance. As you then remove your hand with the chain, shoot without changing the distance.

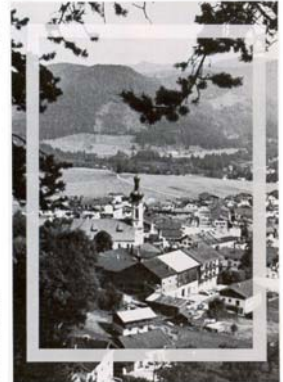
If you use a ruler or tape measure instead of the chain, measure the distance from the front of the camera. To mount the measuring chain directly on the Minox LX without the camera case you need the tripod bush adapter for the LX measuring chain (Order No. 18160).

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The bright-frame finder

The brilliant luminous frame within the finder shows the actual subject field recorded on the film.

When the neutral density filter is in position, a red signal appears in the finder (page 12).



The Minox finder incorporates automatic parallax compensation. Thanks to a coupling between the distance setting and the pivoted finder, the latter shows the correct field of view even with close-ups. With extreme close-ups at about 8–10 inches or 20–24 cm the subject field recorded on the film is reduced by approximately the width of the finder frame line.

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