



微信公众账号 FACEBOOK

安徽长庚光学科技有限公司

www.laowalens.com

服务热线:400-066-1316

Email: sales@laowalens.com

电话Tel:(+86) 551-69107990

地址: 合肥市庐阳区天水路与太和路交口庐阳中科大校友创新园5号楼
Add: Building 5, USTC Alumni Innovation Park, Crossing of Tianshui
and Taihe Road, Luyang District, Hefei City, Anhui Province, China

LAOWA FF II 90mm F2.8 CA-Dreamer Macro 2X

使用手册
Instruction Manual

LAOWA 老蛙

本公司保留更改产品设计与规格的权利，届时恕不另行通知；
本公司保留对此《使用说明》的最终解释权。

Please note we reserve the right to change our product's
design and specifications at any time without notice and
to the final interpretation of the *Instruction Manual*.



Preface

Sincerely thank you for purchasing the LAOWA FFII 90 mm F2.8 CA-Dreamer Macro 2X of full-frame macro lens. It supports a shooting range from infinity to 2 times magnification. It is with the "apoachromatic APO" technology, so that dispersion can be minimized. Whether macro or infinity, excellent imaging quality can be obtained within the range of focus, providing users with stable and reliable support. With it, tiny objects can be captured, such as small insects, jewelry, etc.



 *Read this operation manual carefully to familiarize yourself with its contents and ensure that you can operate the product properly. Keep the Instruction Manual in a safe place where it can easily be referenced whenever required. If you are still unable to solve the problem by reading the manual, please contact our after-sales service for further technical support.*

Main features

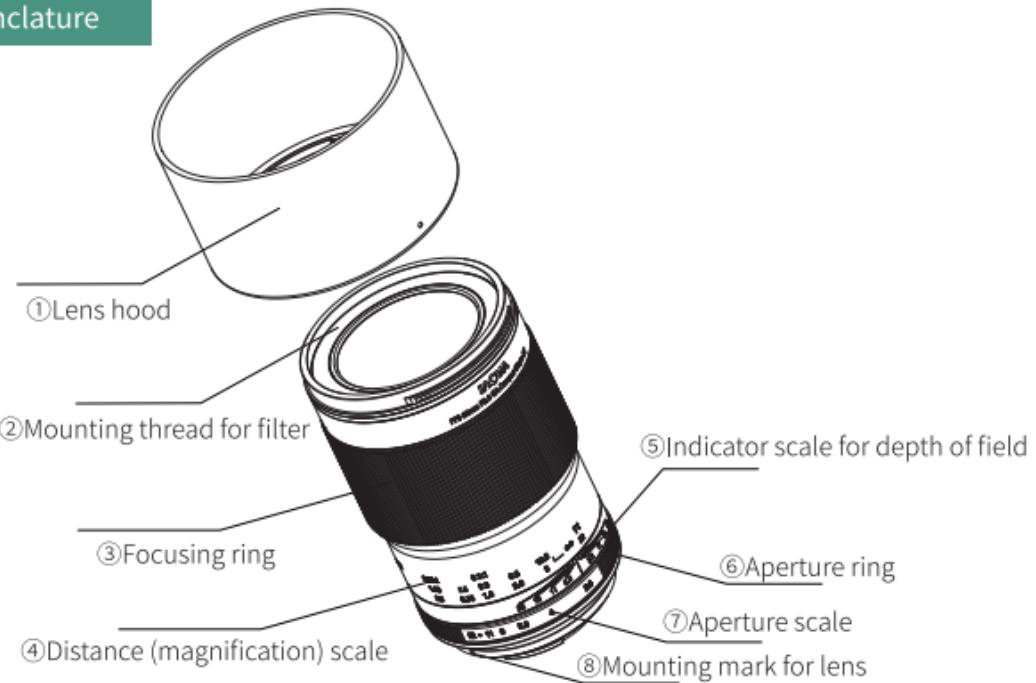
- 1. LAOWA FFII 90 mm F2.8 CA-Dreamer Macro 2× is different from traditional macro lenses. Based on the high-performance imaging of the full-frame system, with this lens, high-resolution pictures can be taken from infinity to macro; and under the macro mode, an amazing 2× object magnification is achieved. With the support of the APO technology, there is no obvious dispersion in imaging with this lens even under 2× magnification. Higher magnification provides users with more creative space.
- 2. The design with 13 diaphragm blades makes the aperture more round, which can make the point light source present a nearly circular blur effect, giving a beautiful and soft blur out of the focus.
- 3. There are 10 groups and 13 pieces of lens pieces, including three ED lens pieces with ultra-low dispersion and three lens pieces with ultra-high refractive indices, which bring about high-quality imaging. There is a mechanical structure fully made of metal materials on the outside to ensure the durability of the lens for long-term use.

Matters needing attention

■ Safety Precautions

- Do not disassemble, alter or modify the lens by yourself. When the lens is damaged due to external forces, do not touch the exposed part or the edge of the place of damage.
- Do not place the lens under direct sunlight, in a locked vehicle, or at other high-temperature places, or otherwise excessively high temperature will cause the lens and other parts to stretch and deform.
- When not using the lens, put the front lens cover the lens or place the lens at a place where there is no direct sunlight. The light reflected by the convex lens may collect on nearby objects and cause a fire.
- When shooting against the light, do not place the sun at the center of the frame, and sufficiently avoid the avoid from the angle of picture, or otherwise the sunlight will collect inside the camera and cause fire or burns to the eye.
- When shooting with the camera's built-in flash lamp, since the lens itself will block the light and result in vignetting, it is recommended that you use an external flash lamp for shooting.
- This lens is of a 35 mm full-frame system. When mounted on an APS-C format camera, the angle of view of the lens will be cropped somewhat.

Nomenclature



■ Precautions for long-term use and maintenance

- Avoid touching the surface of the lens. Use special lens cloth or air blowing to remove dust on the surface of the lens. When the lens is not in use, put the cover it.
- When cleaning the lens with lens paper or lens cloth, wipe the dirt and fingerprints on the lens from the middle to the outside in a spiral manner.
- When the lens is suddenly transferred from a cold environment to a warm environment, water mist will be condensed on external and internal pieces of the lens, so moisture protection measures should be taken when the lens is being transferred.

■ Lens installation

Remove the back cover of the lens. Align the Mounting Mark ⑧ on the lens mount with the corresponding mark on the seat. Then insert the lens into the seat on camera body. And turn the lens in the mounting direction of the purchased mount till lens is locked with a click. Please do not use excessive force during installation to avoid damage to the mount.

■ Lens removal

After turning off the camera, press and hold the lens release button on the camera, turn the lens in the direction opposite to the mounting direction of the purchased mount, and then pull the lens out of the seat.

After mounting the lens, try turning the lens to confirm whether it has been fixed on the camera.

The Canon mount contains an electronic chip, and the aperture parameters can be adjusted through the camera body and lens information can be recorded thusly. The other mounts are on non-CPU lenses and cannot provide data information, so please turn on the "release shutter without lens" function in the camera.

■ Mounting and removing of lens hood

Align the mounting mark on the lens hood with the hood mounting point on the lens, and then turn the hood clockwise till the end is locked tight.

To remove the hood, just back it out in the opposite direction.

The installation of the lens hood can reduce hard light and protect the front components of the lens.

You may no longer be able to use the lens hood after installing certain filters.

If the lens hood is not used, it can be installed on the lens in the reverse direction.

When shooting with the flash lamp, the lens hood may block the light and cause vignetting in the image. Therefore, when using a camera flash lamp or an external flash lamp with light of insufficient brightness, please remove the hood before shooting, or install a special ring flash lamp for macrophotograph.

■ Focusing

This lens is a fully-manual-focus lens. When focus is achieved, slowly turn the Focusing Ring ③ till focus is achieved.

Do not turn the focusing ring too hard or too fast to avoid damaging the focus ring components with excessive force.

The Distance Scale ④ and Scale for Depth of Field ⑤ on the lens are for guidance purposes. The actual focus and the depth of field may be slightly different from the scale marking.

If very precise focus is needed, please achieve focus using the maximum aperture with the camera position fixed, and then turn to the required aperture value after the focus is achieved.

For the convenience of focusing, please turn on the peaking focus function in the camera (depending on the camera function used).

■ How to use the aperture

The aperture is adjusted on the lens. Turn the Aperture Ring ⑥ to select the corresponding aperture according to the shooting environment and the required depth of field.

As this lens is with no CPU data, it is temporarily impossible for the lens to record aperture parameters.

Since the aperture is adjusted manually, it is impossible for shutter priority mode to be put in relatively good use, but the aperture priority mode can be used (the metering accuracy depends on the camera model)

■ Macrophotography mode

The maximum magnification is 2.1 times. The minimum focusing distance is 205mm. And the minimum distance from the object shot to the first glass piece of the lens is about 7 cm.

■ Focusing method I

Focusing after the magnification is determined in advance.

- ① Determine the magnification in advance, then turn the focusing ring to the desired magnification scale mark.
- ② Observe through the viewfinder or by turning on the Live View function, and pan the camera back and forth to roughly focus till a suitable focal length is determined.
- ③ Turn the focus ring to accurately focus on the object.

Focusing method II

Frame the scene to be shot first; while observing through the viewfinder or by turning on the Live View function, turn the focusing ring; after the scene to be shot is framed, proceed to Steps ② and ③ of Method I.

When shooting with high magnification, the working distance from the lens is very short and it is easy for the lens to touch the object. Please be careful when shooting.

Magnification refers to the ratio between the size of the image recorded on the sensor or film and the actual size of the object shot.

Table of depth of field

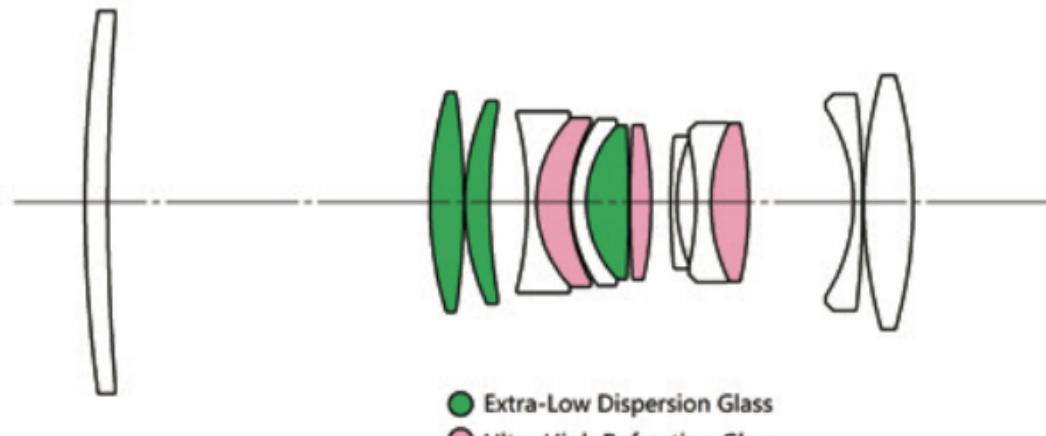
FNo.	OBJD = INF		0.25x		0.5x		0.75x	
	back	front	back	front	back	front	back	front
2.8	INF	79053.21	502.67	498.55	316.17	315.03	263.04	262.44
4.0	INF	57917.81	503.46	497.8	316.39	314.82	263.16	262.33
5.6	INF	41013.25	504.62	496.68	316.71	314.51	263.33	262.16
8.0	INF	29059.92	506.39	495.02	317.2	314.04	263.59	261.91
11.0	INF	20607.64	508.63	492.98	317.81	313.47	263.91	261.61
16.0	INF	14630.98	512.44	489.62	318.85	312.51	264.46	261.1
22.0	INF	10404.84	517.1	485.72	320.1	311.4	265.13	260.5

FNo.	OBJD = INF		1x		1.25x		1.5x	
	back	front	back	front	back	front	back	front
2.8	INF	79053.21	236.51	236.12	218.82	218.57	211.13	210.94
4.0	INF	57917.81	236.58	236.05	218.87	218.52	211.17	210.9
5.6	INF	41013.25	236.69	235.94	218.94	218.45	211.23	210.85
8.0	INF	29059.92	236.86	235.78	219.05	218.34	211.31	210.76
11.0	INF	20607.64	237.06	235.59	219.19	218.21	211.42	210.66
16.0	INF	14630.98	237.42	235.26	219.42	218	211.6	210.5
22.0	INF	10404.84	237.84	234.88	219.7	217.74	211.81	210.3

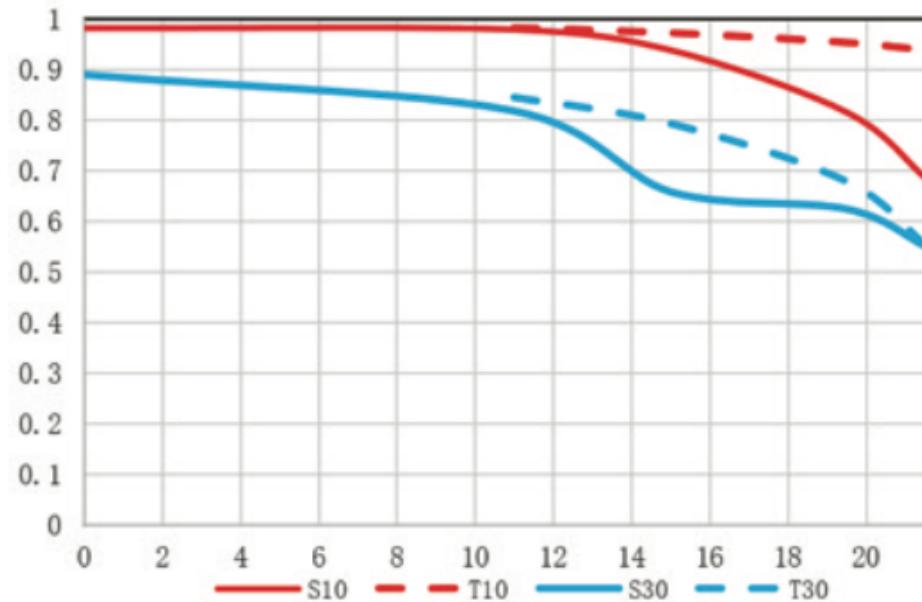
FNo.	OBJD = INF		1.75x		2x	
	back	front	back	front	back	front
2.8	INF	79053.21	207.77	207.6	204.67	204.53
4.0	INF	57917.81	207.8	207.57	204.69	204.51
5.6	INF	41013.25	207.85	207.52	204.73	204.47
8.0	INF	29059.92	207.92	207.45	204.79	204.41
11.0	INF	20607.64	208.01	207.37	204.87	204.34
16.0	INF	14630.98	208.16	207.23	204.99	204.23
22.0	INF	10404.84	208.34	207.06	205.14	204.09

Specifications

LAOWA FF II 90 mm F2.8 CA-Dreamer Macro 2×	
Format	silent frame
Focal distance	90 mm
Aperture range	F2.8-22
Angle of field of view	27°
Lens structure	10 groups and 13 pieces (3 ED lens pieces, 3 lens pieces with ultra-high refractive indices)
Aperture Blades	13 pieces
Min. Shooting Distance	205mm
Max. Magnification	2 times
Focusing	Manual (MF)
Filter Thread	Φ67mm
Dimensions	Φ74 mm × 120 mm
Weight	About 619 g (including front and rear covers)
Mounts	E/R/Z/L



ML FF 90mmF2.8 @inf



LAOWA 老蛙