LAOWA FF 100mm F2.8
CA-Dreamer **Macro 2X**

使用手册
Instruction Manual

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LAOWA 老蛙

前言

真诚地感谢您选购LAOWA（老蛙）FF 100mm F2.8 CA-Dreamer Macro 2X微距镜头。此镜头是全画幅系统镜头，支持微距模式下最大2倍放大，并且拥有“复消色差APO”技术，可将色散彻底消除。从无穷远到微距，都提供了极佳的成像画质，为用户提供了稳定可靠的支持。可拍摄到微小的物体，如小型昆虫、珠宝首饰等。

⚠ *为了操作上的安全，使用本产品前请务必详细阅读使用手册与注意事项，并将手册放在需要时容易取得的地方。如遇到不能解决的问题请通过售后电话获取技术支持。*

主要特色

- LAOWA老蛙 FF 100mm F2.8 CA-Dreamer Macro 2X区别于传统的微距镜头，此款镜头在全画幅系统的高性能成像基础上，无穷远到微距都可以拍出高解析画质的照片，并且微距模式下达到了令人惊叹的2倍物体放大，APO技术的加持，让此镜头在两倍放大成像下，也没有明显的色散。更高的放大倍率，使用户拥有更多的创作空间。

- 佳能口和索尼口使用13片光阑叶片*，组成了圆形光圈，可使点光源呈现出接近圆形的虚化效果。给予了焦外美丽且柔和的虚化。
*尼康、宾得口光阑叶片为7片

- 内部有10组12枚镜片，包含两枚ED超低色散镜片结构带来的高素质成像。外有全金属材料制成的机械结构，保障了镜头长期使用的耐用性。

- 佳能卡口采用自动光圈设计，内置电子马达，可通过机身调节光圈参数并记录拍摄的光圈值与镜头型号数据信息。且在微距拍摄下可保持最大光圈对焦，给予摄影师更方便的对焦体验。

注意事项

⚠ 安全注意事项

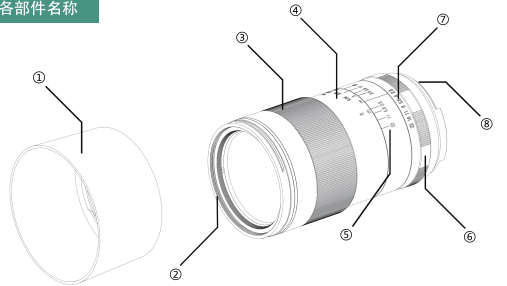
- 切勿自行拆解、修改或改装。当产品由于外力原因破损，切勿触碰外露部分或破损边缘处。
- 切勿放置于直射阳光下、封闭车辆中或其余高温处，否则过高的温度会使镜片和其他部件产生伸缩变形。
- 不使用镜头时，请将镜头前盖盖上或置于没有阳光照射处。凸透镜反射出的光线可能会聚集在附近物体上，导致发生火灾。
- 在逆光拍摄时，切勿将太阳置于画面中心，应该使太阳充分偏离画角，否则阳光会在相机内部聚集并导致火灾或灼伤眼睛。
- 在使用相机内置闪光灯拍摄时，由于镜头本身会遮挡光线而产生渐晕，因此建议您使用外设闪光灯拍摄。
- 本镜头为35mm全画幅系统镜头，装在APS-C格式照相机上时，镜头画面视角将有所裁切。

注意事项

长期使用保养注意事项

- 避免触摸镜头表面，应用专用镜头布或气吹去除镜头表面的尘埃，不使用镜头时，应将镜头盖盖上。
- 使用镜头纸或镜头布清洁时,以螺旋的方式从中间向外擦拭镜头上的污垢以及指印。
- 镜头从寒冷的环境突然转移至温暖的环境时，镜头的外部以及内部镜片将会凝结水雾，所以在转移时应采取防潮保护措施。

各部件名称



（尼康口版本）

①遮光罩　③对焦环　⑤景深指示刻度　⑦光圈刻度(佳能无)

②滤镜安装螺纹　④距离(倍率)刻度　⑥光圈环(佳能无)　⑧镜头安装标记

镜头安装

取下镜头后盖。将镜头卡口上的安装标记⑧对准相机座圈上的对应标记，随后将镜头插入机身座圈，根据所购买卡口的安装方向旋转镜头，直至咔嚓声锁紧镜头。安装时请不要用力过猛，以免导致卡口损伤。

镜头装卸

- 关机后按住相机上的镜头释放按钮，依照所购买卡口的安装方向反向旋转镜头，随后将镜头从座圈中拔出。
- 装上镜头后，请尝试旋转镜头确认是否已将其固定在相机上。

- *佳能口含电子芯片，可通过机身调节光圈参数并记录镜头信息。其余卡口为非CPU镜头，无法提供数据信息，所以请在相机内开启“无镜头释放快门”功能。*

使用说明

遮光罩装卸

- 将遮光罩上的安装标记对准镜头上的遮光罩安装点，然后顺时针旋转遮光罩，直至锁紧末端为止。
- 如要拆卸遮光罩，按相反方向旋出即可。
- 安装遮光罩可减少强光并保护镜头前部元件。
- 安装某些滤光镜后，您可能无法再使用遮光罩。
- 若不使用遮光罩时，可将遮光罩反向安装于镜头上。
- 利用闪光灯拍摄时，遮光罩可能遮挡住光线而造成影像上的渐晕现象。所以在使用相机闪光灯或使用高度不够的外置闪光灯时,请拆卸遮光罩后再进行拍摄。或安装微距专用环形闪光灯。

对焦

- 此款镜头是全手动对焦镜头，合焦时，缓慢旋转对焦环③，直至合焦。
- 不要过猛过快地旋转对焦环，避免用力过度损坏对焦环部件。
- 镜头上的距离刻度④与景深刻度⑤是出于指导目的。实际焦点与最深可能同刻度标记稍有不同。
- 如需要非常精确的对焦，请在固定好相机位置的情况下使用最大光圈对焦，对焦完成后再旋至所需要的光圈值。
- 为了对焦的方便性，请开启相机内的峰值对焦功能(视所使用相机功能而定)。

光圈使用（不包含佳能口）

- 光圈在镜头上调节，根据拍摄环境和与所需要的景深，转动光圈环⑥来选择对应的光圈。
- 由于此镜头无CPU数据，所以暂时无法记录光圈参数。
- 由于光圈为手动调节，无法较好的使用快门优先模式，但可以使用光圈优先模式(测光准确度视相机型号而定)。

*佳能卡口镜头直接在机身内控制相应光圈值即可

微距摄影模式

最大放大倍率为2: 1倍，最近对焦距离为24.7cm, 从被拍物体镜头前端距离最近约 7.5cm。

- *尼康卡口若要实现较为准确的自动测光功能，必须要在机身的非CPU菜单下设定最大光圈和焦距。然后将需要的光圈，在镜头上预先设定，就可以实现较为准确的自动测光。*

使用说明

对焦方法

对焦方法一：
放大倍率预先确定后再进行对焦
① 预先确定放大倍率，随后转动对焦环至所需的放大倍率刻度。
② 通过取景器或开启Live View（实时取景）功能观察画面，并前后平移相机进行粗略对焦直至确定合适的焦距。
③ 转动对焦环对物体进行精确对焦。

对焦方法二：
先构定拍摄画面在通过取景器或开启Live View（实时取景）功能观察画面的同时，转动对焦环，构定拍摄画面后，进行方法一的②、③步骤。

- *在进行高放大倍率拍摄时，镜头的工作距离非常短，容易碰到拍摄物体，请小心拍摄。*
- *放大倍率是指记录在传感器或胶片上的图像尺寸大小与拍摄物体的实际尺寸大小之间的比例关系。*

景深表

倍率	无限远		0.5X		1.0X		1.5X		2.0X	
光圈值	back	front	back	front	back	front	back	front	back	front
f/2.8	INF	98418.02	347.65	346.89	265.78	265.6	250.72	250.64	248.04	247.99
f/4	INF	71464.84	347.79	346.74	265.81	265.56	250.74	250.62	248.05	247.98
f/5.6	INF	50585.88	348.01	346.53	265.86	265.51	250.76	250.6	248.07	247.97
f/8	INF	35822.23	348.32	346.23	265.93	265.44	250.8	250.56	248.09	247.95
f/11	INF	25382.76	348.76	345.8	266.04	265.34	250.85	250.52	248.12	247.92
f/16	INF	18000.93	349.39	345.2	266.19	265.19	250.91	250.45	248.16	247.88
f/22	INF	12781.2	350.28	344.36	266.39	264.99	251.01	250.35	248.21	247.83
（像面到物体的距离，单位：mm）										

规格表

LAOWA老蛙 FF 100mm F2.8 CA-Dreamer Macro 2X	
焦点距离	100mm
最大光圈	2.8
视场角度	24.4°
镜头结构	10组12枚 ED 2枚
光阑叶片	尼康/宾得卡口7片，佳能口9片，其他卡口13片
最近摄影距离	24.7cm
最大摄影倍率	2倍
合焦驱动方式	手动(MF)
滤镜直径	67mm
镜头尺寸（直径/长）	约Φ72X125mm(不含滤镜和遮光罩)
重量	约638克
卡口	佳能EF RF、尼康F Z、索尼FE、宾得PK

新创意 · 新乐趣

LAOWA 老蛙

Introduction

Thank you for purchasing LAOWA老蛙FF 100mm F2.8 CA-Dreamer Macro 2X. Featuring max. 2X magnification and APO technology, the lens is dedicated to Full Frame system cameras. It is designed to deliver stunning image quality ranging from macro to infinity, which greatly supports you to capture tiny subjects such as small insects and jewelries etc.

⚠*Prior to use, please read this instruction manual carefully to ensure proper use. Keep the Instruction Manual in hand and refer to it whenever needed. If you are still unable to solve the problem by reading the manual, please contact our after-sales service for further technical support.*

FEATURES

- Unlike common macro lenses, LAOWA老蛙 FF 100mm F2.8 CA-Dreamer Macro 2X offers superior performance that can focus from infinity to 2X, with superb chromatic aberration correction resulted from its APO technology. High magnification helps generate more creative works.
- The Canon and Sony versions of the lens feature 13-blade circular aperture, which contributes to producing soft round-shaped bokeh by blurring the point light source.
  *Nikon & Pentax versions featuring 7-blade aperture
- The lens is comprised of 12 elements in 10 groups with 2 pieces of ED glass included, which contribute to creating outstanding imaging. All-metal construction also ensures long-time durability.
- Since canon versions are equipped with auto aperture and internal electric motor, aperture can be set on the camera with lens data being recorded. It effectively enables photographers to get focus wide open when shooting macro.

PERCAUTIONS

⚠ Safety Precautions

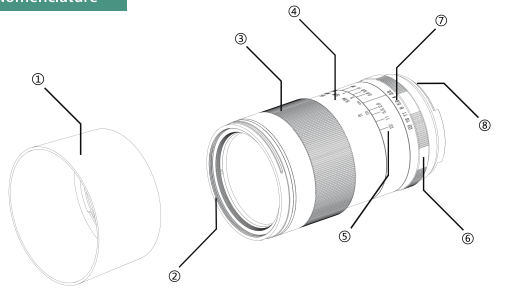
- Do not disassemble, modify the lens by yourself. Do not touch the internal parts that become exposed as the result of external force.
- Do not leave the lens where it will be exposed to high temperatures, such as in direct sunlight and an enclosed vehicle. Excessive heat may deform the glass elements and other parts of the lens.
- Whether it is attached to a camera or not, do not leave the lens under the sun without the lens cap attached. This is to prevent the lens from concentrating the rays, which could cause a fire.
- Do not place the sun in the frame center when shooting with backlight. Sunlight focused into the camera when the sun is in or close to the frame could cause a fire or damage to your eyes.
- The lens itself may block the light and cause light fall-off when using the camera′ s built-in flash, so external flash will be recommended here.
- Designed for Full Frame cameras, the lens′ angle of view will be narrowed when mounted on APS-C format ones.

PERCAUTIONS

Maintenance Precautions

- Avoid touching the lens surface. Remove the dust on the lens surface with a lens cloth or a blower. Keep the lens cap attached.
- Using a circular motion with a lens tissue or cleaning cloth, gently remove oil, fingerprints, and grime from the lens surface, working from the center outward.
- If the lens is taken from a cold environment into a warm one, condensation may develop on the lens surface and internal parts. To prevent condensation in this case, please take measures to protect against moisture before moving the lens.

Nomenclature



（尼康口版本）

①Lens hood ②Filter thread ③Focus ring ④Distance(Magnification) scale
⑤Depth-of-field scale ⑥Aperture ring(Canon version: N/A)
⑦Aperture scale(Canon version: N/A) ⑧Lens mounting index

Mounting the Lens

- Remove the lens rear cap. Align the Lens mounting index (8) with the mark on the camera mount, then insert the lens into the camera mount and turn the lens in the direction for your lens version until it clicks into position.
- Gently rotate the lens to make sure it is properly attached to the camera.

Detaching the Lens

Turn the camera off. Press the lens release button. Turn the lens in the direction opposite to that for attaching and pull it out.

- *Aperture can be set on the camera with lens data being recorded in that canon versions of the lens feature electronic chips. As for other mounts, please set [Release shutter w/o lens] to [enable] on the camera because Non-CPU lenses cannot provide actual EXIF data.*

Attaching and Removing the Lens Hood

- Line up the Lens hood mounting index with the mounting dot on the lens, and turn the lens hood clockwise until it clicks.
- Turn the lens hood in the direction opposite to that for attaching to remove it.
- The lens hood helps reduce lens flare and protects the lens front element from damage.
- Lens hood may be unavailable when using some certain filters.
- Place the lens hood backwards over the lens when not using it.
- When shooting with a flash, the lens hood may block light which may cause vignetting. So when shooting with camera' s built-in flash or with the external flash unit that is not high enough, please remove the hood first before shooting. Selecting dedicated macro ring flash is also a great option.

Focusing

- As the lens is a manual focus lens, please slowly turn the Focus ring (3) to get focus.
- Gently turn the focus ring to prevent the focus mechanism from damage.
- The Distance scale(4) & Depth-of-field scale(5) are simply for instructional purpose. Actual focus and DOF may slightly differ from those scale indications.
- To get precise focus, make sure camera position is fixed, focus on the subjects wide open. Get focus first and then set the desired aperture by turning the aperture ring.
- Use [Focus Peaking] makes it easier to get focus. (Note that the function depends on camera models.)

Setting the Aperture(unavailable to Canon version)

- Turn the Aperture ring(6) on the lens to choose the corresponding aperture according to the shooing situation and desired depth-of-field.
- The lens cannot provide actual aperture value of the lens to the camera since it is a manual focus lens.
- Aperture-priority is a better option than Shutter-priority for the lens because of its manual aperture. (Note that metering precision depends on the camera models.)

  * Canon version lenses allow you to set the desired aperture on the cameras.

Macro Shooing

The lens features 2X magnification, 24.7cm min. focusing distance and 7.5 cm min. working distance.

- *For the Nikon version lenses, select [Non-CPU Lens Data], set the widest aperture and focal length, and preset the aperture you desire on the lens to obtain precise auto exposure.*

INSTRUCTIONS

Focusing Tips

Method 1 Magnification Priority

- Set the magnification first, and then turn the focus ring to the desired magnification marked on the lens.
- Look through the viewfinder or enable [Live View], and roughly focus to obtain proper focus by moving the camera back and forth.
- Turn the focus ring to achieve precise focus.

Method 2 Framing Priority

Frame first. Turn the focus ring while you are looking through viewfinder or enable [Live View], and then follow the step 2, 3 as the method 1 above.

- *For high magnification close-ups, please be careful not to touch the subjects in that the lens' working distance is extremely short.*
- *Magnification is the relationship between of the size of subject's projection on the image sensor and that of the subject in reality.*

Depth of Field Table

Magnificaion	INF		0.5X		1.0X		1.5X		2.0X	
F-number	Back	Front	Back	Front	Back	Front	Back	Front	Back	Front
f/2.8	INF	98418.02	347.65	346.89	265.78	265.6	250.72	250.64	248.04	247.99
f/4	INF	71464.84	347.79	346.74	265.81	265.56	250.74	250.62	248.05	247.98
f/5.6	INF	50585.88	348.01	346.53	265.86	265.51	250.76	250.6	248.07	247.97
f/8	INF	35822.23	348.32	346.23	265.93	265.44	250.8	250.56	248.09	247.95
f/11	INF	25382.76	348.76	345.8	266.04	265.34	250.85	250.52	248.12	247.92
f/16	INF	18000.93	349.39	345.2	266.19	265.19	250.91	250.45	248.16	247.88
f/22	INF	12781.2	350.28	344.36	266.39	264.99	251.01	250.35	248.21	247.83
Distance between the subject and image sensor,unit: mm										

Specifications

LAOWA老蛙 FF 100mm F2.8 CA-Dreamer Macro 2X	
Focal Length	100mm
Aperture	F2.8
Field of View	24.4°
Lens Construction	12 elements/ 10 groups (ED glass x2)
Aperture Blades	13 (Nikon & Pentax versions featuring 7, Canon version featuring 9)
Min. Shooting Distance	24.7cm
Max. Magnification	2
Focusing	MF
Filter Thread	67mm
Dimensions	72X125mm (Filter and lens hood excluded)
Weight	638g
Mounts	CanonEF RF、NikonF Z、SonyFE

New Idea , New Fun

老蛙镜头

为乐趣而生