LAOWA CF 60mm F2.8 Super Macro 2X

使用手册
Instruction Manual

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前言

真诚地感谢您选 LAOWA CF 60mm F2.8 Super Macro 2X，为了充分地理解本产品的使用方法和注意事项，在使用前请仔细阅读本说明书。

⚠ *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

- CF 60mm F2.8 Super Macro 2X是针对APS-C画幅设计的数码单反交换镜头，可以从无穷远到2:1倍摄影倍率均可很好成像的超微距镜头，无需附加增倍镜就可以实现惊人的2倍摄影倍率。
- 为保证从无穷远到近距离优异的成像素质，此镜头采用了主合焦组和辅助合焦组两组移动合焦组，彻底地补正了因合焦而引起的像面弯曲，球差等像差的过度产生。不论是无穷远还是近距离的成像性能，均是此规格微距镜头的顶级性能。
- 此款镜头的机械结构全部采用金属部件，确保了镜头的组装精度和耐用性。
- 每块镜片均采用低反射多层膜，彻底的消除了鬼影和眩光。换算成35mm规格，可覆盖相当于约90mm的视角，倍率相当于惊人的3倍。
- 为实现润滑自然的前后离焦虚化背景，充分的考虑到因球面像差引起的亮边轮状光斑，补正了因慧差引起的拖尾光斑和因像散产生的二线虚化背景。

注意事项

⚠ 安全注意事项

- 镜头以及安装镜头的相机，避免将镜头直接对着太阳和强光，以防灼伤眼睛或者烧坏相机的CCD/CMOS。
- 在太阳或者强光下，不使用时镜头或者安装好镜头的相机最好将镜头盖子盖好，以防灼伤CCD/CMSO或者引发火灾。

⚠ 使用注意事项

- 镜头从寒冷的环境突然转移到温暖的环境时，镜头的外部以及内部镜片将会凝结水雾，所以不用时做好防湿保护。
- 防止直接强光照射，长时间暴晒的话，过高的温度会使镜片和其他部件伸缩变形，出现预想不到的故障。

各部件名称

使用说明

镜头的装卸

针对不同厂家的机身请选用对应的卡口，安装方法请参照各家机身的使用方法。

对焦方式

此款镜头是全手动对焦镜头，合焦时，缓慢旋转对焦环，不要过猛过快的旋转对焦环，避免用力过猛损坏对焦环部件。

摄影说明

- 一般摄影模式

  35mm格式换算，此款镜头相当于约90mm的中望远镜头的画角，可以拍人像特写等。

- 微距摄影模式

  最大摄影倍率为2：1倍，最短摄影距离为18.5CM，从被拍物体到镜头前端距离最近约5CM。合焦方法可以分构图优先和倍率优先。

  （构图优先摄影：观看取景器中画面，优先考虑构图，然后手动合焦。）

  （倍率优先摄影：将放大倍率设定好，利用云台合焦。）

曝光补偿计算方法

摄影倍率和实效FNo.

照相机表示的光圈值是镜头在无穷远(∞)合焦时的光圈值,实际光圈值(实效FNo.)随着摄影距离的靠近(摄影倍率的增大),光圈将逐渐变暗(实效FNo.数值变大),在一般摄影距离的情况下,曝光数值几乎没有影响,可以忽略,但是在微距摄影时,实效Fno.变化比较大,需要适当曝光补偿。

摄影倍率		0.25	0.5	0.75	1	1.25	1.5	1.75	2
实效 FNo.		3.5	4.2	4.8	5.5	6.1	6.8	7.5	8
曝光补偿（段）	1/2段表示	+1/2	+1	+3/2	+2	+2	+2	+2	+2
	1/3段表示	+2/3	+1	+5/3	+2	+2	+2	+2	+2
						需要延长曝光时间或加闪光灯			

1/3段的刻度来考虑的话、下表为常用的参考表(ISO感度为100时)

Ev 值	1			2			3			4			5			6			7			8			9
光圈 F	1.4	1.6	1.8	2	2.2	2.5	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1	8	9	10	11	13	14	16	18	20	22
快门速度	1/2	1/2.5	1/3	1/4	1/5	1/6	1/8	1/10	1/13	1/15	1/20	1/25	1/30	1/40	1/50	1/60	1/80	1/100	1/125	1/160	1/200	1/250	1/320	1/400	1/500

镜头规格

镜头编号	CF 60mm F2.8 Super Macro 2X
焦点距离	60mm
视场角	25.3°
镜头结构	7组9片
光阑叶片	14
最大光圈	2.8
最小光圈	22
最近摄影距离（物像距离）	18.5cm
最大放大倍率	2.0倍
合焦驱动方式	手动（MF）
滤镜直径	62mm
镜头尺寸（直径/长）	约95×70mm
重量（不含罩子）	约503克
卡口	佳能EF口 尼康F口 索尼E口 A口 宾得PK口

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Operation Manual

Thank you for your selecting LAOWA CF 60mm F2.8 Super Macro 2X. Please carefully read this manual to ensure a full understanding of the usage and cautions.

⚠ *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。*

Features

- LAOWA CF 60mm F2.8 Super Macro 2X is an interchangeable DSLR one designed for APS-C size, a super macro lens capable of producing fine images from infinity to 2:1 magnification and realizing an amazing 2-fold magnification with no barlow attached.
- To ensure the fine image from infinity to a close range, the lens adopts moveable in focus groups, namely, a prime one and an auxiliary one, which drastically correct the excessive field curvature and spherical aberration due to in-focus. For the imaging at infinity or a close distance, the lens will display its fantastic performance.
- The mechanical structure of the lens uses metal components, ensuring the assembly accuracy and reliability.
- For each lens, low-reflection, multi-layer film is adopted to completely erase the ghosting and flare. When converted into a 35-mm specification, it can cover a view angle of about 90 mm, the magnification being amazingly 3 times.

- To realize the lubrication of natural backgrounds in back and front out-of-focus blurring, full consideration has been given to the round-shaped spots on the brightened margin caused by spherical aberration, and the tailing flares arisen from coma and the two-line blur from astigmatism are thus corrected.

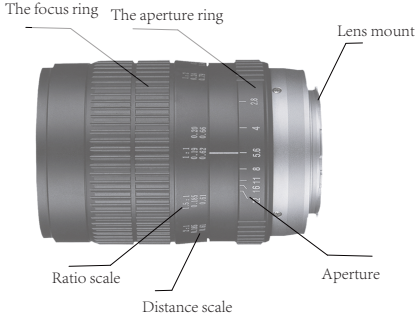
⚠ Safety Note

- For a lens or a camera installed with a lens, avoid a direct exposure of the lens to the sun or a high light, so as to protect eyes and CCD/CMOS.
- In the sun or a high light, it would be better to cover up the lens and the camera fixed with the lens with the lid when not used, to avoid burning the CCD/CMSO or a fire.

⚠ Usage Note

- When suddenly transferred to a warm surrounding from a cold one, both the exterior and the interior would be condensed with water mist, and thus keep the lens dry while not used.
- Avoid the direct exposure to a high light; if under the blazing sun for quite a long time, the excessive temperature would deform the lens and other component, resulting in an unexpected failure.

Name of Components



Directions for use

Lens Assembling & Disassembling

Select the corresponding mount according to the camera body, and refer to the usage instructions on the body provided by the maker for the assembly method.

Focusing Mode

The lens is of a fully-manual focusing type; at the in-focus, slowly turn the focusing ring and do not make a hard and rapid movement to avoid damaging the component.

Shooting Instructions

- General Mode
  Converted into a 35mm format, the lens, equal to a prospective of a medium and telephoto lens of about 90mm, can be used for shooting a portrait close-up, etc.

- Macroshot Mode
  The maximum image magnification is 2:1, the minimum shooting distance is 18.5CM, and the shortest distance between an object and the front end of the lens is about 5 CM.

The in-focus method includes a composition priority and a magnification priority.

(Composition-priority shooting: look at the picture in the viewfinder, prioritize the composition, and then manually do the in-focus.)
(Magnification priority shooting: set the magnifying power and use the gimbal for in-focus.)

Image Magnification		0.25	0.5	0.75	1	1.25	1.5	1.75	2
Real-effect FNo.		3.5	4.2	4.8	5.5	6.1	6.8	7.5	8
Exposure Compensation (Segment)	1/2 Segment Indication	+1/2	+1	+3/2	+2	+2	+2	+2	+2
	1/3 Segment Indication	+2/3	+1	+5/3	+2	+2	+2	+2	+2

Considering the scale on the 1/3 Segment, the following is a common reference table (ISO sensitivity being 100)

Ev值	1			2			3			4			5			6			7			8			9
光圈F	1.4	1.6	1.8	2	2.2	2.5	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1	8	9	10	11	13	14	16	18	20	22
快门速度	1/2	1/2.5	1/3	1/4	1/5	1/6	1/8	1/10	1/13	1/15	1/20	1/25	1/30	1/40	1/50	1/60	1/80	1/100	1/125	1/160	1/200	1/250	1/320	1/400	1/500

Specifications of Product Models

Lens No.	CF 60mm F2.8 Super Macro 2X
Focal Distance	60mm
FNO	2.8
Field Angle	25.3°
Frame Size	APS-C
Lens Structure	9 Blades, 7 Groups
Blade of diaphragm	14 Blades
Minimum Aperture	22
Closest Shooting Distance	18.5cm
Maximum Magnification	2.0 Folds
In-focus Drive Mode	MF
Filter Diameter	F 62mm
Lens Size (Length/Diameter)	About 95×70mm
Weight	About 503g
Mounts	Canon EF / Nikon F / Sony E / Sony A / Pentax K

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