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LAOWA 25mmF2.8
2.5-5X ULTRA
MACRO

使用手册

Instruction Manual

LAOWA 老蛙



前言

真诚地感谢您选购LAOWA（老蛙）LW-FF 25mmf/2.8 2.5-5.0X ULTRA MACRO 五倍超级微距镜头。此镜头可将拍摄物体放大约2.5-5.0倍，帮助摄影师拍摄到极其微小的物体，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。

此镜头为特殊微距镜头，对焦距离仅限于微距领域，结构上无法实现无限远合焦。
(可拍摄距离为173.0-223.8mm)

主要特色

- LAOWA（老蛙）LW-FF 25mmf/2.8 2.5-5.0X ULTRA MACRO 是一支可以从2.5倍到5倍连续变倍的全画幅超级微距镜头。
- 镜头轻便小巧，易操作，在微距摄影时，负担小，更稳定。
- 为方便微距摄影的布光，采用了特殊的光学结构设计，实现了40mm（5倍时）—45mm（2.5倍时）超长工作距离。
- 本镜头是全金属结构，质感强，坚固耐用，每片玻璃都采用多层超低反射增透膜，最大限度消除了眩光和鬼影。

注意事项

△ 安全注意事项

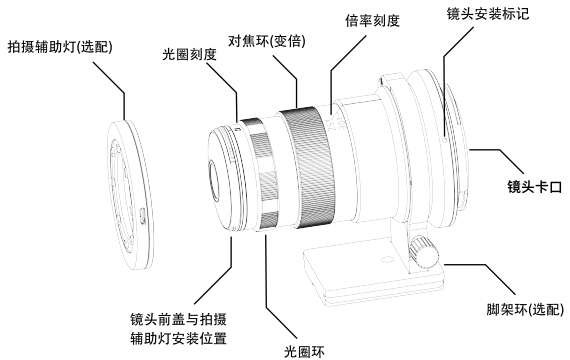
- 切勿自行拆解、修改或改装。当产品由于外力原因破损，切勿触碰外露部分或破损边缘处。
- 切勿放置于直射阳光下、封闭车辆中或其余高温处，否则过高的温度会使镜片和其他部件产生伸缩变形。
- 不使用镜头时，请将镜头前盖盖上或置于没有阳光照射处。凸透镜反射出的光线可能会聚集在附近物体上，导致发生火灾。
- 在逆光拍摄时，切勿将太阳置于画面中心，应该使太阳充分偏离画角，否则阳光会在相机内部聚集并导致火灾或灼伤眼睛。
- 在使用相机内置闪光灯拍摄时，由于镜头本身会遮挡光线而产生渐晕，因此建议您使用外设闪光灯拍摄。

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。此镜头不能装UV镜，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。

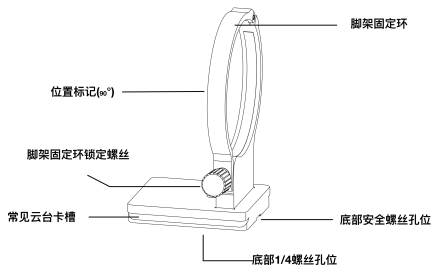
各部件名称



(佳能口版本)

各部件名称

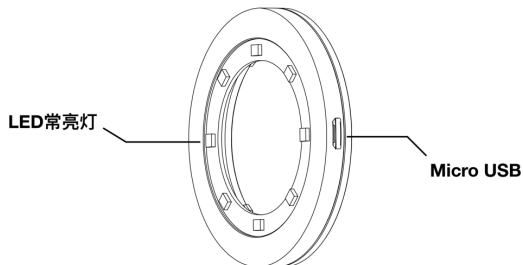
脚架环（选配）



- 为了防止相机跌落，在拆卸脚架环时请握紧相机；
- 如需另外安装快装板，请先拆卸底部安全螺丝；
- 当切换竖幅拍摄时，转动相机使把手朝上，将镜头中心线对齐脚架环上的90°位置标记。

各部件名称

拍摄辅助灯（选配）



- 安装时请参照镜头前盖的安装方法安装；
- 请选择输出功率为5V 2.1A的外置电源设备；
- 本辅助灯亮度有限，更多用于对焦辅助，所以在拍摄时建议再外加闪光灯拍摄。

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装卸方法。

■ 对焦方式

本镜头使用手动方式进行对焦，对焦时，转动镜头上的对焦环。共有两种对焦方式，一种是先设定放大倍率，另一种是先构定拍摄画面。

- 由于此镜头仅限于微距领域，结构设计上无法实现无限远合焦，可拍摄对焦的距离约为173.0-223.8mm；
- 为了避免损坏镜头对焦环部件，请勿过猛地旋转对焦环；
- 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。

使用说明

■ 对焦方法说明

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。

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，进行上述步骤②、③。

- 为了防止相机晃动，请使用三脚架与快门线，并开启反光板预升或静音拍摄功能；
- 在采用方法一拍摄时，请使用对焦导轨拍摄以降低对焦难度；
- 在进行高放大倍率拍摄时，实际光圈将变暗，请参考曝光补偿表做相应的调整；
- 为了减少拍摄时的抖动，请在用三脚架的同时配合使用闪光灯；
- 为了更准确的曝光，请使用手动曝光模式(M)。

使用说明

景深

由于微距拍摄时景深范围非常之小，因此对焦时需小心缓慢才能获得理想的清晰度。要想预先确定景深，请参考以下景深列表。

景深列表（单位：mm）						
放大倍率 光圈值	2.5X	3.0X	3.5X	4X	4.5X	5X
f/2.8	0.090	0.080	0.070	0.060	0.060	0.050
f/4.0	0.129	0.114	0.100	0.086	0.086	0.071
f/5.6	0.180	0.160	0.140	0.120	0.120	0.100
f/8	0.257	0.229	0.200	0.171	0.171	0.143
f/11	0.354	0.314	0.275	0.236	0.236	0.196
f/16	0.514	0.457	0.400	0.343	0.343	0.286

使用说明

曝光补偿计算方法

放大倍率与实效f值

照相机表示的光圈是假设镜头在无限远（ ∞ ）时的光圈值，随着摄影距离的靠近（摄影倍率的增大），实际影像亮度随之变暗（实效f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。但是在高倍率微距摄影时，“实效f值”变化比较大，需要根据情况适当增加曝光补偿（实际补偿量可参考以下曝光补偿表与末页的测光表）。

曝光补偿表							
放大倍率		2.5X	3.0X	3.5X	4.0X	4.5X	5.0X
实效f值		9.8	11.2	12.6	14	15.4	16.8
曝光补偿 (步长)	1/2 步长	+7/2	+4	+4	+9/2	+9/2	+5
	1/3 步长	+10/3	+4	+4	+14/3	+5	+5

使用说明

闪光灯系统

由于此镜头拍摄物体过于微小，任何轻微晃动都会影响画面清晰度，所以请使用闪光灯拍摄。

与通常的拍摄相比，微距的曝光准确与否取决于拍摄主题本身，很难第一次获得准确的曝光，请多次试验调整至合适参数。

测光表

(见末页)

- 由于柔光材料会降低闪光灯的光线，所以建议选购较高系数的微距闪光灯；
- 微距布光需要不同角度、距离、方向，可选择灯臂较长且多灯组的微距闪光灯；
- 请选择与你相机相互兼容的闪光灯型号。

规格表

LW-FF 25mmf/2.8 2.5-5.0X ULTRA MACRO	
焦距/光圈	25mm, f/2.8
放大倍率	2.5X - 5.0X
视角范围	10.3° (全画幅 2.5X)
镜头结构	6 组 8 片 (含 1 枚低色散玻璃)
光阑叶片	8 片
最小光圈	f/16
最近摄影距离	173.0 - 223.8mm
工作区间	45mm(2.5X) - 40mm(5.0X)
合焦驱动方式	手动(MF)
最大直径	Φ58.2mm (尼康口)
长度	82-139mm (2.5X-5X 尼康口)
重量	约 400g



PREFACE

Thank you for purchasing LAOWA LW-FF 25mm f/2.8 2.5-5.0X Ultra Macro Lens. The lens can shoot extreme close-ups up to 2.5 - 5.0X and enables photographers to capture tiny subjects such as small insects, jewels etc.



 Prior to use, please read this instruction manual carefully before to ensure proper use. Keep the Instruction Manual in hand and refer to it whenever needed. If you are unable to solve the problem by read the manual, please contact our after-sales service for technical support. This a macro especially used lens for close-up photography that does not allow infinity focus structurally.
(Shooting distance range: 173.0-223.8mm)

FEATURES

- LAOWA LW-FF 25mmf/2.8 2.5-5.0X is a high-magnification full frame ultra macro lens that can magnify the subject from 2.5X to 5X.
- Compact body and ease of use make the lens a perfect match for macro photography with great stability.
- For easy lighting setup, the lens is able to allow extremely long working distance ranging from 40mm (5X) to 45mm (2.5X) through special optical design.
- Full-metal construction makes the lens feel really solid with great durability. Multi-layer anti-reflection coating for each glass element contributes to minimizing flare and ghost.

PERCAUTIONS

Safety Precautions

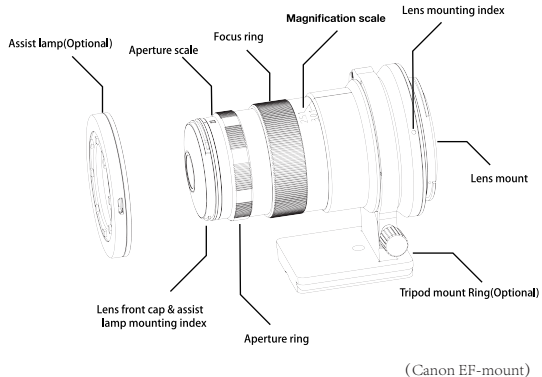
- Do not disassemble or modify the lens by yourself. If it is damaged by external force, do not touch any exposed part of the lens.
- Do not expose the lens to excessive heat such as direct sunshine or a parked car as this may deform the glass elements.
- When it is not attached to the camera, do not leave the lens under the sun without the lens cap attached. This is to prevent the lens from concentrating the sun's rays, which may cause a fire.
- When shooting with the built-in flash of the camera, the lens itself may block light and cause light fall-off. So external flash can be recommended in such case.

PERCAUTIONS

■ Maintenance Instructions

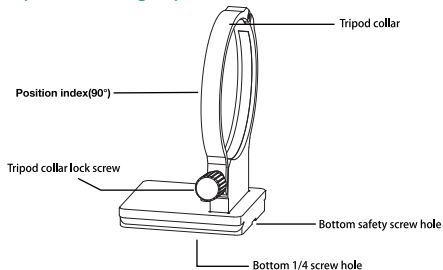
- Avoid touching the lens surface. Remove the dust on the lens surface with a lens cloth or a blower. Keep the lens cap attached because it is unable to attach UV filter.
- Using a circular motion with lens cloth or cloth, gently remove oil, fingerprints, and grime from the lens surface, working from 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



NOMENCLATURE

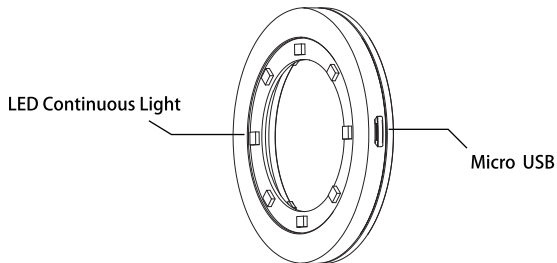
■ Tripod mount ring (Optional)



- To prevent the camera from falling, please hold the camera tightly when removing the tripod mount ring.
- Remove the safety screw on the bottom first and then attach then quick release plate if needed.
- When shooting vertically, turn the camera and lift the knob upwards and then line up the optical axis with the 90° position index on the tripod mount ring.

NOMENCLATURE

■ Assist lamp (Optional)



- Refer the instructions of lens' front cap to that of this assist lamp.
- Please select 5V 2.1A output external power supply.
- Due to limited luminance, the lamp is more used for focus assist and it is recommended that you shoot with a extra flash.

INSTRUCTIONS

■ Mounting and Detaching the Lens

Choose the corresponding lens mount according to your camera body, and refer to your camera's instructions on mounting and detaching the lens.

■ Focusing

Turn the focus ring on the lens to get focus as LAOWA is a MF lens. There are two ways of focusing, you can give priority to magnification or to framing.

- *Limited to close-up shots, it allows a focusing distance range of 173.0mm to 223.8mm and can not focus to infinity.*
- *Gently turn the focus ring to prevent the focus mechanism from damage.*
- *When making high magnification shots, please shoot carefully because you are so close to the subject under the extremely short working distance.*
- *Magnification refers to the ratio between the subject's size in reality and the size of the subject's projection on the image sensor.*

INSTRUCTIONS

■ Focusing Instructions

● Method 1: Magnification Priority

1. Set the magnification first. Turn the focus ring to the required magnification.
2. Focus the subject roughly. While looking through the viewfinder or using live view, move the camera back or forward to find the proper focus.
3. Focus the subject finely. Turn the focus ring to get sharp focus.

● Method 2: Framing Priority

While looking through the viewfinder or using live view to frame and focus, turn the focus ring, frame the subject and then follow steps 2 and 3 above.

- *To prevent camera shake, using the tripod, shutter release, mirror lock-up and silent mode are recommended.*
- *When shooting as method 1 (magnification priority), a focusing rail slider will make focusing easier.*
- *For high magnification shots, the actual aperture will become darker, so please refer to exposure compensation table to make adjustments accordingly.*
- *To reduce shake when shooting, please use a tripod and a flash.*
- *Manual exposure mode is recommended to obtain accurate exposure.*

INSTRUCTIONS

■ Depth-of-Field

As macro photography comes with shallow depth-of-field, so you need to focus carefully to achieve ideal sharpness. Please refer to the depth-of-field table to understand DOF in advance.

Depth-of-Field Table (Unit: mm)						
Magnification F-number	2.5X	3.0X	3.5X	4X	4.5X	5X
f/2.8	0.090	0.080	0.070	0.060	0.060	0.050
f/4.0	0.129	0.114	0.100	0.086	0.086	0.071
f/5.6	0.180	0.160	0.140	0.120	0.120	0.100
f/8	0.257	0.229	0.200	0.171	0.171	0.143
f/11	0.354	0.314	0.275	0.236	0.236	0.196
f/16	0.514	0.457	0.400	0.343	0.343	0.286

INSTRUCTIONS

■ Exposure Compensation Calculation

Magnification and Effective F-number

The aperture displayed by the camera assumes that the focus is set to infinity (∞). The actual aperture (effective f-number) becomes darker (effective f-number increases) at closer focusing distances (magnification increases). However, for closeup photography, you can not ignore the change in the effective f-number and need to increase EV based on the circumstance. [For understanding of actual EV, the exposure compensation table and metering table(continued on the last page) shown below are for your reference.]

Exposure Compensation Table							
Magnification		2.5X	3.0X	3.5X	4.0X	4.5X	5.0X
Effective F-number		9.8	11.2	12.6	14	15.4	16.8
Exposure Compensation	1/2 Stop	+7/2	+4	+4	+9/2	+9/2	+5
	1/3 Stop	+10/3	+4	+4	+14/3	+5	+5

INSTRUCTIONS

■ Flash

Characterized by shooting exceptionally small subjects, such macro lens is prone to camera shake, so shooting with a flash is recommended.

Compared with normal shooting, the proper exposure for macro photography depends on the subject itself. It is difficult to obtain correct exposure the first time so please keep practicing.

- *Since diffusion materials may reduce the light of the flash, so selecting a macro flash with high output is recommended.*
- *As angle, distance and direction are the several key factors to consider in macro lighting setup, using the flash with long arm and more light unit is recommended.*
- *Select the flash that is compatible with your camera.*

SPECIFICATIONS

LW-FF 25mmf/2.8 2.5-5.0X ULTRA MACRO	
Focal Length/Aperture	25mm, f/2.8
Magnification	2.5X - 5.0X
Angle of View	10.3°(FF 2.5X)
Lens Construction (Group/Element)	6/8 (including 1 pc of Extra Low Dispersion Glass)
Aperture Blade	8
Min. Aperture	f/16
Min. Shooting Distance	173.0 - 223.8mm
Working Distance	45mm (2.5X) - 40mm (5.0X)
Focusing	MF
Max. Diameter	Φ58.2mm (F-mount)
Length	82-139mm (F-mount)
Weight	About 400g

测光表 METERING TABLE

测光表 Metering Table												
EV (ISO 100)		光圈值 F-number										
		f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32
曝光时间 Exposure Time	15s	-4	-3	-2	-1	0	1	2	3	4	5	6
	8s	-3	-2	-1	0	1	2	3	4	5	6	7
	4s	-2	-1	0	1	2	3	4	5	6	7	8
	2s	-1	0	1	2	3	4	5	6	7	8	9
	1s	0	1	2	3	4	5	6	7	8	9	10
	1/2s	1	2	3	4	5	6	7	8	9	10	11
	1/4s	2	3	4	5	6	7	8	9	10	11	12
	1/8s	3	4	5	6	7	8	9	10	11	12	13
	1/15s	4	5	6	7	8	9	10	11	12	13	14

测光表 METERING TABLE

continued from previous page (接上页)

测光表 Metering Table												
EV (ISO 100)		光圈值 F-number										
		f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32
曝光时间 Exposure Time	1/30s	5	6	7	8	9	10	11	12	13	14	15
	1/60s	6	7	8	9	10	11	12	13	14	15	16
	1/125s	7	8	9	10	11	12	13	14	15	16	17
	1/250s	8	9	10	11	12	13	14	15	16	17	18
	1/500s	9	10	11	12	13	14	15	16	17	18	19
	1/1000s	10	11	12	13	14	15	16	17	18	19	20
	1/2000s	11	12	13	14	15	16	17	18	19	20	21
	1/4000s	12	13	14	16	16	17	18	19	20	21	22
	1/8000s	13	14	15	16	17	18	19	20	21	22	23