FF 15-24mm T8 1.6X MACRO PROBE ZOOM

使用手册
Instruction Manual

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前言

真诚地感谢您选购 LAOWA FF 15-24mm T8 1.6X MACRO PROBE ZOOM 特种微距镜头。此镜头是全画幅系统特种微距镜头，这支镜头以他独特的外形和特殊的光学设计，给予摄影师前所未有的拍摄体验，开拓全新的拍摄方法，捕捉到一般镜头无法完成的拍摄视角。

⚠ *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

- 镜身细长，结构特殊，可深入部分常规微距镜头难以深入的地方，如部分动物洞穴、水下、狭长的缝隙等。
- 镜头套装为四支可更换前镜组和两支变焦后组，分别是0°、35°、90°和潜望的前组结构。
- 两个变焦后镜组（15-35mm T12和15-24mm T8）可进行自由切换，配合前镜组的不同拍摄角度的组合，切换拍摄视角，满足实际拍摄环境的需要。
- 镜头前端为全防水结构，可深入水下拍摄。

注意事项

⚠ 安全注意事项

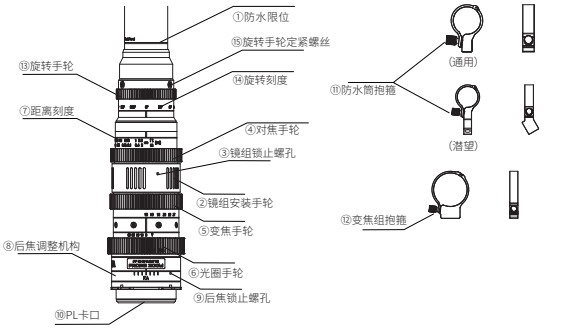
- 切勿自行在镜头结构拆装功能之外的拆解、修改或改装。当产品由于外力原因破损，切勿触碰外露部分或破损边缘处。
- 切勿放置于直射阳光下、封闭车辆中或其余高温处，否则过高的温度会使镜片和其他部件产生伸缩变形。
- 不使用镜头时，请将镜头前盖盖上或置于没有阳光照射处。凸透镜反射出的光线可能会聚集在附近物体上，导致发生火灾。
- 在逆光拍摄时，切勿将太阳置于画面中心，应该使太阳充分偏离画角，否则阳光会在相机内部聚集并导致火灾或灼伤眼睛。
- 在使用相机内置闪光灯拍摄时，由于镜头本身会遮挡光线而产生渐晕，因此建议您使用外设闪光灯拍摄。

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，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



使用说明

镜头安装

取下镜头后盖，将镜头卡口⑩对准相机座圈上的对应标记，随后将镜头插入机身座圈，顺时针旋转PL卡口锁止环即可。如果购买和安装其它卡口组件，请按照对应卡口的安装方式，进行安装。安装时请不要用力过猛，以免导致卡口损伤。

镜头拆卸

关机后逆时针旋PL卡口锁止环，如果购买和安装其它卡口组件，按住对应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。

光圈使用

光圈在镜身上调节，根据拍摄环境和与所需要的景深，转动镜身光圈环来选择对应的光圈。

由于此镜头无CPU数据，无法记录光圈参数。

对焦

此款镜头是全手动对焦镜头，合焦时，缓慢旋转对焦手轮④，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⑦与放大倍率是出于指导目的。实际焦点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)。

对焦方法

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。

前镜组拆装方法

①使用包装附赠内六角批头，将防水筒定紧螺丝拧松。
②旋转防水筒手轮，拧松并取下前镜组结构（前镜组和防水筒为一体结构）。
③取出更换前镜组，安装时请确保蓝色刻度线在一条直线上，才能够放入安装座圈，锁止防水筒手轮，并拧紧防水筒定紧螺丝，拆装完成。

后焦调整方法

①将对焦齿轮拧到无穷远，观察画面，如果画面清晰，无需调整后焦，如果画面出现模糊失焦的情况，需要调整后焦，调整方法如下。
②用附赠内六角批头拧松后焦调整结构定紧螺丝（如图），后焦调整结构即可左右旋转，在旋转的过程当中，观察画面是否清晰，画面调整清晰后，锁紧定紧螺丝，即可完成后焦调整。

旋转功能使用方法

35°90°潜望三个角度均具备旋转功能
①拧松旋转手轮定紧螺丝。
②根据拍摄需求旋转手轮，可实现360°旋转，每30°有限位标识。
③设置好旋转角度后，拧紧旋转手轮定紧螺丝即可。

规格表

FF 15-24mm T8 1.6X MACRO PROBE ZOOM	
画幅	全画幅
焦距	15-24mm
T值范围	T8-32
视场角	84.1°-110.5°
镜头结构	26组37片
光圈叶片数	9片
对焦环行程	90°
光圈环行程	31°
变焦倍率	1.6X
变焦环行程	58°
像场直径	Ø43.2mm
跟焦齿模数	0.8Mod
最近对焦距离（物像距离）	600.5mm
最近工作距离（微距专用）	5mm
最大放大倍率	1X -1.6X
合焦驱动方式	MF
滤镜尺寸	/
镜头前端尺寸	Ø32mm
最大直径	Ø68.8mm
镜头尺寸	Ø68.8 x 369.7 mm(潜望) Ø68.8 x 539.2 mm(35°) Ø68.8 x 545.1 mm(0°) Ø68.8 x 545.6 mm(90°)
重量	1420 g（潜望） 1400 g（35°） 1380 g（0°） 1400g(90°)
卡口	PL（可更换卡口组件EF/E/RF/Z/L）

Preface

Thank you for purchasing LAOWA FF 15-24mm T8 1.6X MACRO PROBE ZOOM Lens. This lens is a special macro lens designed for full-frame cameras. It features unusual shape and unique optical design, which offers you extraordinary shooting experiences, enables you to explore new avenues of photography, and captures incredible scenes from a truly unique angle which inaccessible to common macro lenses.

⚠ *For operational safety, please read the manual and precautions carefully before using this product, and keep the manual at a place that is easily accessible when needed. If you encounter a problem that cannot be solved, please ask for technical support through email.*

Features

- This long and tubular lens barrel could be inserted into places that are difficult for some conventional macro lenses to shot, such as some animal caves, underwater, narrow crevices, etc.
- The lens set consists of four interchangeable front lens groups and two rear zoom lens groups, namely the front lens groups of 0°, 35°, 90°and periscope.
- Two interchangeable rear zoom lens groups (15-35mm T12 and 15-24mm T8) allow seamless switching, combined with front lens groups' multi-angle configurations, to adapt to diverse shooting scenarios.
- The front barrel of the lens has a fully waterproof structure. The waterproof design implies that this lens could be used in underwater shooting.

Precautions

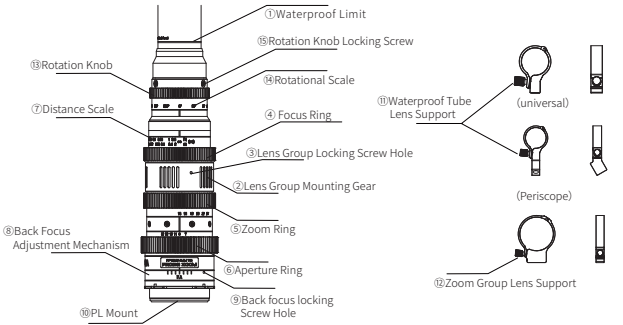
⚠ Safety Precautions

- 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 the 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 sun’ s rays, which could cause a fire.
- Do not place the sun in the frame center when shooting with backlight. Doing so might cause a fire or harm your eyes.
- The camera’ s built-in flash will cause barrel shadow if used with this lens. For best results, please only use an external flash unit.

Maintenance Precautions

- Do not touch the surface of the lens directly. Brush off any dust with a blower. Wipe the surface with a cleaning cloth or a lens tissue.
- Try a circular motion from the center outward to remove oil, fingerprints and grime on the lens surface.
- If your lens is brought directly from a cold place to a warm place, condensation may appear on the lens. To avoid this, be sure to take some action to protect the lens.

Name of each part



To attach the Lens

Remove the rear lens cap. Align the mounting index ⑩on the lens bayonet with the mounting index on the camera, and place the lens on the camera mount, then rotate the PL mount locking ring clockwise. If you purchase and install other interchangeable bayonets, please install them according to the installation method of the corresponding mount. Do not use excessive force during installation to avoid damage to the bayonet.

To remove the lens

Turn the camera off, then rotate the PL mount locking ring counterclockwise. If you purchase and install other interchangeable bayonets, press and hold the lens release button on the camera, rotate the lens in the opposite direction of the mount you purchased, then detach the lens.
After attaching the lens, please try to rotate the lens to make sure it mounted onto the camera properly.

Focusing

This is a fully manual lens. Rotate the focusing ring④ slowly to get focus.
Turn the focus ring slowly and gently to prevent the focus mechanism from damage.
The distance scale⑦ and magnification are for instructional purposes. Actual focus may slightly differ from those scale indications.
To get precise focus, it is recommended to focus wide open when the camera position is fixed. Get focus first, then set the desired aperture by turning the aperture ring.
Turn on the focus peaking on the camera to help focusing. (Note that the function depends on camera models.)

Setting the Aperture

Aperture is set through the aperture ring on the lens. According to the shooting situation and desired depth of field, rotate the aperture ring on the lens to the corresponding aperture.
Since the lens has no CPU data, the aperture value can’ t be recorded.

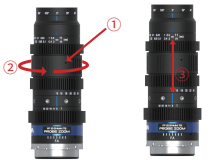
Focusing Tips

Method 1 Magnification Priority
①Set the magnification first, and then turn the focus ring to the desired magnification mark on the lens.
②Check the frame by viewfinder or [Live View] on the camera and try to get focus by moving the camera back and forth until obtaining the proper focal length.
③Rotate the focus ring to achieve precise focus.

Method 2
Set the frame first. Turn the focus ring while you are checking the image through viewfinder or [Live View] on the camera, and then follow steps ②, ③ as the method 1 above.
For high magnification close-ups, because of the extremely short working distance, please be careful not to touch the subject.
Magnification is the ratio between the size on the camera sensor of an object and its true size.

Detach the Front Lens Group

①Use the Hex Bit included in the package to loosen the set screw of waterproof tube .
②Rotate the waterproof tube gear, loosen and remove the front lens group structure (the front group and waterproof tube are integrated structure)
③ Take out and replace the front group. When installing, make sure that the blue scale lines are in a straight line before inserting on the camera mount, lock the waterproof tube gear, and tighten the set screw of waterproof tube gear, The disassembly and assembly is completed.



Adjustment of back focus

①Turn the focus ring to infinity and observe the frame. If the frame is clear, there is no need to adjust the back focus. If the frame is blurry and out of focus, you need to adjust the back focus. The adjustment method is as follows.
②Use the included Hex Bit to loosen the set screw of the back focus adjustment structure (as shown in the picture). Gently turn the back focus adjustment ring left and right while monitoring live view. After the frame reaches peak sharpness, tighten the set screw to complete the back focus adjustment.

The use of Rotation Function

35°/90°/Periscope Angles All Support Rotation.
①Loosen the rotation knob locking screw.
②Rotate the knob to desired position to achieve 360° rotation, with limit marks every 30°.
③After setting the rotation angle, tighten the rotation knob locking screw.

Specifications

FF 15-24mm T8 1.6X MACRO PROBE ZOOM	
Format	FF
Focal Length	15-24mm
Aperture Range	T8-32
Angle of View	84.1°-110.5°
Lens Structure	37 elements in 26 groups
Aperture Blades	9
Focus Throw	90°
Aperture Throw	31°
Zoom Ratio	1.6X
Zoom Throw	58°
Image Circle Diameter	Ø43.2mm
Gear Mod	0.8Mod
Min. focusing Distance	600.5mm
Min. Working Distance	5mm
Max. Magnification	1X -1.6X
Focus Type	MF
Filter Thread	/
Front Diameter	Ø32mm
Largest Diameter	Ø68.8mm
Dimensions	Ø68.8 x 369.7 mm(Periscope) Ø68.8 x 539.2 mm(35°) Ø68.8 x 545.1 mm(0°) Ø68.8 x 545.6 mm(90°)
Weight	1420 g(Periscope) 1400 g (35°) 1380 g (0°) 1400g(90°)
Mounts	PL (Interchangeable Bayonet Assembly: EF/E/RF/Z/L)