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LAOWA FF 12mm F2.8 D-Dreamer
超广角大光圈镜头

（适用佳能/尼康/索尼/宾得单反卡口/E口）

使用手册
Instruction Manual

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LAOWA 老蛙

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真诚地感谢您选购LAOWA FF 12mm F2.8 D-Dreamer 超广角镜头，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。

特长及新技术采用

1/ LAOWA（老蛙）12mmF2.8超广角大光圈全画幅(FF)单反交换镜头，采用了超大口径玻璃非球面一枚，中口径玻璃非球面1枚，彻底的矫正了畸变像差，为了保证从无限远到近距离都能实现0畸变的性能，合焦方式采用了主合焦组和辅助合焦组两组配合对焦，彻底地补正了因距离变化而引起的畸变变化过大问题。

2/ 为解决超广角大光圈带来的色散问题，此镜头采用了3枚异常分散玻璃(EDglass)，彻底的矫正了色散像差。

3/ 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。

4/ 每块镜片均采用低反射多层膜，彻底的消除了鬼影和眩光。

5/ 此镜头由于采用了超大口径非球面，和多枚异常分散玻璃(ED glass)，也实现了高性能和小型化完美结合。

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。

注意事项

⚠ 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

• 1/ 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。

• 2/ 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。

• 3/ 镜头入瞳（节点）使用方法

在拼片和全景摄影时，拍摄多张拼片时以此节点作为相机旋转的中心点，拍摄出来的多张照片中前后物体透视不会发生变化，镜头中前后的物体就不会发生位移，可保证后期拼接照片的精度，避免难看的接片破绽。

• 4/ 光圈使用方法和测光方式

尼康卡口

若要实现自动测光功能，必须要在机身的非CPU菜单下设定最大光圈和焦距。（注：尼康机身最小焦距为13mm，没有12mm）然后将需要的光圈，在镜头上预先设定，就可以实现自动测光。

宾得卡口

机身可以读取光圈信息，不需要设定光圈，如果使用光圈优先模式的时候，请将光圈手轮拧到A位置，此时，可以在机身上调节光圈，实现自动测光功能，A以外的刻度，可以按住机身的绿色预览按钮实现测光。

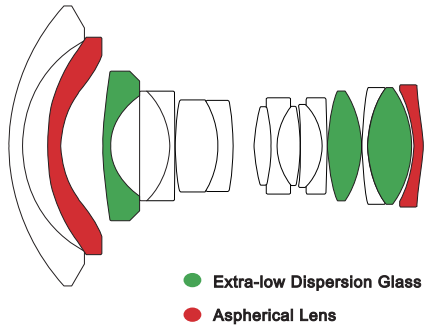
其他卡口

A档可以自动测光，但是没有光圈信息。

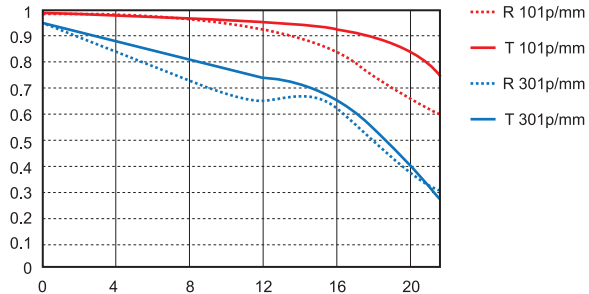
• 4/产品式样规格

镜头编号	D-Dreamer 12mm F2.8
焦点距离	12mm
光圈	2.8~22
视场角度	121.96°
镜头结构	10组16片（玻璃非球面2枚,异常分散玻璃3枚）
光阑叶片	7片
最近摄影距离（物像距离）	18cm
最大放大倍率	0.2倍
合焦驱动方式	手动（MF）
滤镜直径	不可
镜头尺寸（直径/长）（不含罩子）	约Φ74.8×82.2毫米
重量（不含罩子）	约609克

• 5/光学结构图



• 6/MTF性能图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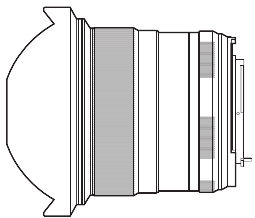


New Idea . New Fun.

Thank you very much for purchasing LAOWA FF 12mm F2.8 D-Dreamer Ultra Wide Angle Lens. Please read this manual thoroughly before use to familiarize yourself with the lens for creating the highest quality images possible.

Features

1/ LAOWA 12mm F2.8 D-Dreamer Ultra Wide Angle Lens is an interchangeable lens specifically designed for Full Frame Sensor DSLRs.

2/ Two pieces of Aspherical Lenses contribute to correcting spherical aberration.

3/ Main and auxiliary focusing group for correcting distortion caused by changeable distances to subject.

4/ Three pieces of ED (Extra-low Dispersion) Glass Elements for removing chromatic aberration.

5/ All-metal construction ensures lens' high assembly precision and long-lasting durability.

6/ Multi-layer Low Reflective Coatings for every lens element to eliminate ghosting and flare.

7/ Though equipped with several pieces of large-diameter Aspherical Lenses and ED glass elements, LAOWA 12mm F2.8 D-Dreamer Ultra Wide Angle Lens keeps itself compact and portable with high optical performance.

Precautions

⚠ Safety Precautions

- Don't look at the sun or intense light source directly through a camera with a lens attached in case it may cause damage to CCD/CMOS of the camera and one's eyesight.

- Don't leave the lens under the sun without the lens cap attached to prevent damage to CCD/CMOS of the camera and fire danger.

Precautions

⚠ Handling Precautions

- When the lens is taken from a cold environment into a warm one, condensation may develop on the surface and internal parts of the lens. Do not leave the lens in conditions where drastic temperature changes can occur and keep it in a dry environment when it is not in use.

- Don't expose the lens to direct sunlight. High temperature caused by long time sunlight exposure can cause the lens to break down and deform the lens elements or other parts.

Nomenclature of Lens Parts

- 1/ Mounting And Removing The Lens

  Choose the corresponding lens mount, then refer to one's camera instructions for details on how to attach and remove the lens from a camera body.

- 2/ Focusing Mode

  Adjust the focus by turning the focusing ring as it is a manual focus only lens. Do not apply too much force when turning focus ring or move it too quickly in case of damage of the part.

- 3/ Usage of Entrance pupil

  Entrance pupil ,often called nodal point ,when making a panoramic image, rotate the cameral around this point to take several images with different directions ,the alignment between fore and the background in these images doesn't move at all , it can provide perfect stitchings to assemble these images into one single wide image.

- 4/ Metering Method

  Nikon

  Select Non-CPU Lens Data, set the maximum aperture and focal length. (Note: On Nikon camera bodies, there is no exact match for 12mm focal length, use the closest one of 13mm.) Then set the aperture value as required by adjusting the aperture ring on the lens to automatically match the correct exposure.

  Pentax

  In Aperture Priority Mode, turn the aperture ring to a special "A" position which allows the camera to control the aperture setting without using the aperture ring on the lens to get automatic exposure. Or measuring the light by directly pressing the Green Button on a Pentax camera body to obtain accurate exposure.

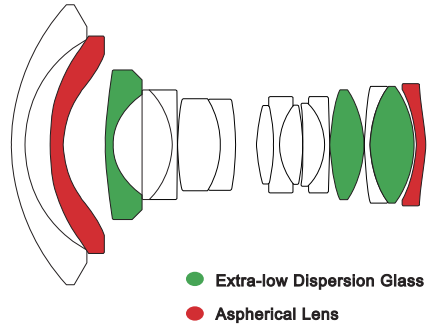
  Other Camera Systems

  In Aperture Priority Mode, set the aperture and let the camera automatically adjust shutter speed for optimal exposure. Note that there is no chip in the lens to communicate aperture information to the camera

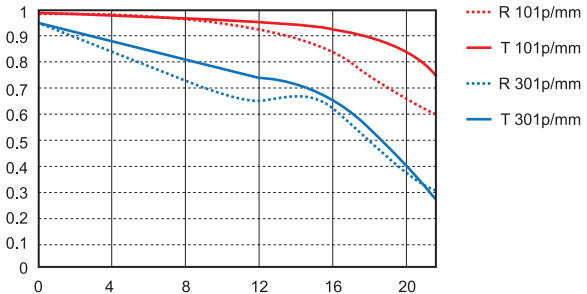
• 4/ Specifications

Lens No.	LAOWA 12mm F2.8 D-Dreamer Ultra Wide Angle Lens
Focal Length	12mm
Aperture Range	F2.8-F22
Angle of View	121.96°
Lens Construction (Elements/Groups)	16/10 (Aspherical Lens x 2pcs, Extra-low Dispersion Glass Element x 3pcs)
Aperture Blades	7
Minimum Shooting Distance	18cm
Maximum Magnification Ratio	0.2X
Focusing Mode	Manual Focus (MF)
Filter Thread	No (Note that 100mm square filter with a filter holder can be attached to.)
Dimension (Diameter X Length) (Lens Hood Excluded)	74.8 X 82.2mm
Weight (Lens Hood Excluded)	609g

• 5/ Optical Formulas



• 6/ MTF Chart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