Nikon

Tokina

Instruction Manual

AT-X 107 DX	*10~17mm F3.5~4.5 Fisheye*
AT-X 116 PRO DX	*11~16mm F2.8*
AT-X 124 PRO DX	*12~24mm F4*
AT-X 165 PRO DX	*16~50mm F2.8*
AT-X 535 PRO DX	*50~135mm F2.8*
AT-X 840 D	*80~400mm F4.5~5.6*
AT-X M35 PRO DX	*35mm F2.8 Macro*
AT-X M100 PRO D	*100mm F2.8 Macro*

D series

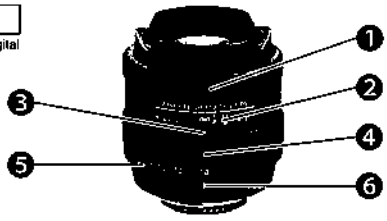
ENGLISH

中 國 語

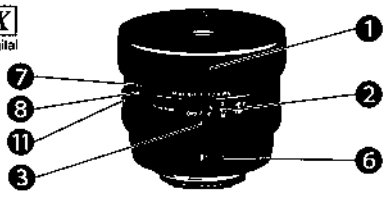
● Descriptions of Parts

❶ Manual Focus Ring
❷ Focus Distance Scale
❸ Focus Distance Index
❹ Zoom Ring
❺ Focal Length Scale
❻ Center Index
❼ Auto-Focus (AF) Position
❽ Manual Focus (MF) Position
❾ Hood Attachment Index
❿ Aperture ring
⓫ Focus-limiting switch
⓬ Zoom lock mechanism
⓭ Tripod mounting screw
⓮ Tripod indicator
⓯ Tripod ring

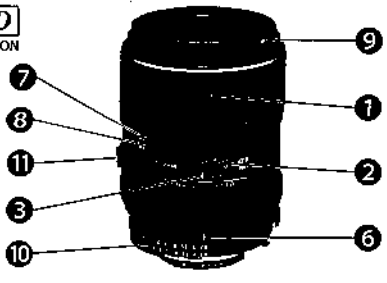
AT-X 107 DX
TO FIT NIKON Digital



AT-X M35 PRO DX
TO FIT NIKON Digital

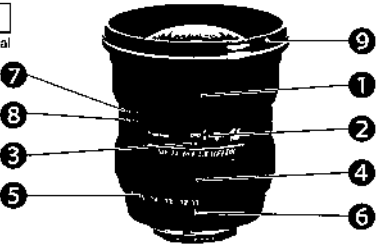


AT-X M100 PRO D
TO FIT NIKON



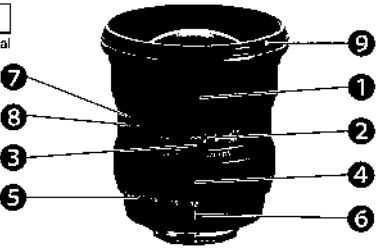
AT-X 116 PRO DX

TO FIT NIKON Digital



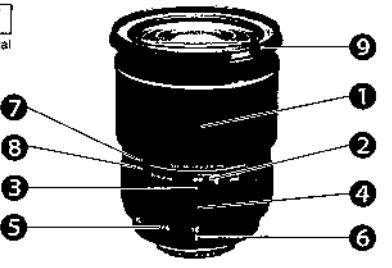
AT-X 124 PRO DX

TO FIT NIKON Digital



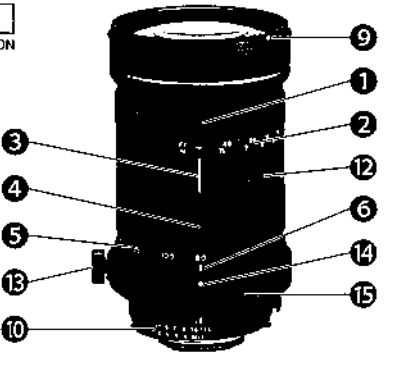
AT-X 165 PRO DX

TO FIT NIKON Digital



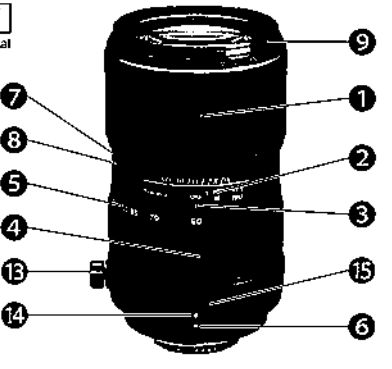
AT-X 840 D

TO FIT NIKON



AT-X 535 PRO DX

TO FIT NIKON Digital



Tokina's DX lens is designed for use with a digital single-lens reflex (SLR) camera of APS-C size. Do not use it with a digital SLR camera with a solid-state imaging device of a size larger than APS-C, nor with a SLR camera designed for silver-halide film. The D lens can be used with both digital SLR cameras with APS-C size sensors and 35mm SLR film cameras.

■More Information
DEUTSCH
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Tokina

Tokina Co., Ltd
120-4 Nozuta-Machi, Machida-Shi, Tokyo 195-0063, Japan

● How to Attach / Detach the Lens

Attach/detach the lens to/from your camera according to the instructions provided in the manual provided with your camera.

* When attaching/detaching the lens, be careful not to touch the electronic contacts on the lens mounting surface nor crush these contacts due to strong impact.

● Focusing

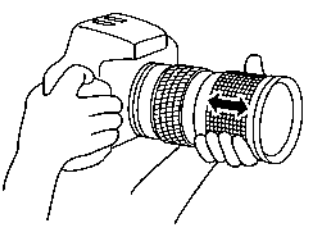
The lens is normally focused automatically when the focus mode switch is set to the Auto focus position. If the camera is in the manual-focus mode, adjust the focus by looking into the finder and turning the manual focus ring. This lens also supports focusing through the use of a focusing aid.

● One-Touch Controllable Focus-Clutch Mechanism

<How to switch from the Auto focus position to manual focus position>

The lens focus mode can be switched between the Auto focus and manual focus positions at any time by moving the manual focus ring forward and backward.

* For lenses using either the Nikon or Canon mounting system, it is possible to use manual focus without switching the focus mode switch on either the camera body or the lens to the manual position.
  In the Auto focus position the manual focus ring turns freely.



● Exposure Modes

For the exposure mode settings, follow the applicable instructions provided in the manual provided with your camera.

● Lens Hood

A lens hood is designed to prevent the flares and ghost images that are caused by strong diagonal or side rays striking the front of the lens. We recommend that you use a lens hood to ensure clear, problem-free photographs and protect the lens.

* The AT-X124 PRO DX/AT-X165 PRO DX/AT-X M100 PRO D/AT-X535 PRO DX/AT-X 840 D lens hood can be attached in the reverse direction on the front of the lens for storage.

● Lens Hood

A lens hood is designed to prevent the flares and ghost images that are caused by strong diagonal or side rays striking the front of the lens. We recommend that you use a lens hood to ensure clear, problem-free photographs and protect the lens.

* The AT-X124 PRO DX/AT-X165 PRO DX/AT-X M100 PRO D/AT-X535 PRO DX/AT-X 840 D lens hood can be attached in the reverse direction on the front of the lens for storage.

<How to attach the lens hood>

[AT-X M100 PRO D]

Place the lens hood on the lens by aligning the index (IN ●) on the hood with the hood attachment index (●) on the lens. Secure the hood by turning it clockwise (when viewed from the front) until it clicks into place. Grabbing the tip of the lens hood with a strong force will make it difficult to attach/detach the hood. When attaching /detaching the lens hood, do so by holding the base of the hood (the part attached to the lens).

[AT-X 116 PRO DX] [AT-X 124 PRO DX] [AT-X 165 PRO DX] [AT-X 535 PRO DX]

To securely install the hood, align the IN ● mark on the hood with the hood attachment indicator (●) on the lens, and then turn the hood clockwise, as viewed from the front, until a click is heard.

Confirm that the ▼ mark on the hood is aligned with the center index on the lens.

[AT-X 840 D]

To securely install the hood, align the IN ● mark on the hood with the hood attachment indicator (●) on the lens, and then turn the hood clockwise, as viewed from the front, until a click is heard.

Confirm that the ▼ mark on the hood is aligned with the hood attachment indicator (●) on the lens.

<PL Assist Hood Mechanism>

The AT-X 840 D's hood incorporates a PL-filter rotating device. By turning the rubber operation dial, you can use the PL filter while the hood is installed.

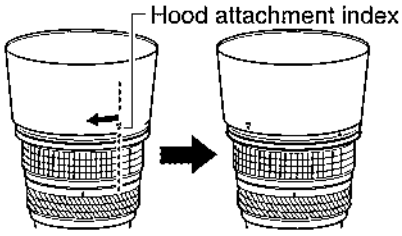
* PL Filter

  You can use the PL filter with Hoya's PRO 1 Digital Circular PL (W), Circular PL.

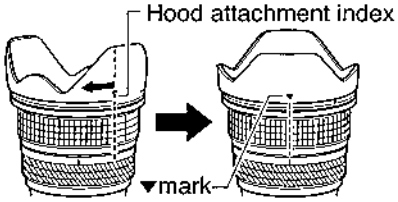
  When other kind of filter is used, it is recommended you check in advance if it works on your lens.

When installing or removing the hood, do not grab the tip strongly because doing so will make it difficult to install or remove the hood. Install or remove the hood by holding the base (attachment part) of the hood.

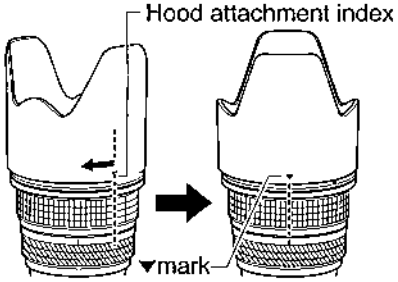
AT-X M100 PRO D



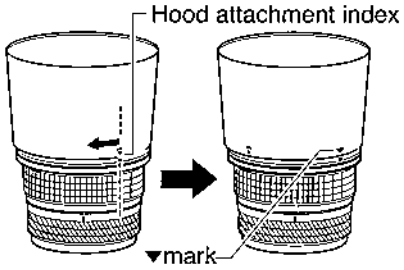
AT-X 116 PRO DX | *AT-X 124 PRO DX*
AT-X 165 PRO DX



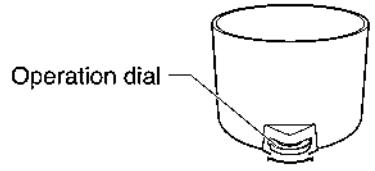
AT-X 535 PRO DX



AT-X 840 D



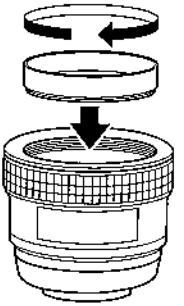
PL assist hood mechanism



*** When attaching the hood, turn it until you hear a "click" to ensure a secure fit. If the hood is not attached properly, vignetting could occur.**

[AT-X M35 PRO DX]

AT-XM35PRODX comes with a screw-in hood used for attachment of PL filter. Screw it out if it impedes your close distance shooting.



● Filters

Use threaded filters with this lens. Perfect photographs cannot be taken if the filter is dirty or when water droplets or other foreign particulates are attached to the filter. Clean the filter thoroughly before taking photographs.

* Always use one filter at a time. If two or more filters are used together, or when a thick filter such as a polarized filter is used, vignetting (darkening at the corners of the exposed image) may occur.

● Caution Regarding Use of a Built-in Flash

If the camera's built-in flash is used, the light of the built-in flash will be partially obstructed by the lens, so that the film shows a large shaded area. Therefore, use an external flash when this lens is attached.

◗ Flash Photography (Red-eye phenomenon)

When people are photographed with the aid of a flash, their eyes sometimes become red. This is called the "red-eye phenomenon." Follow the manual of your camera for information on how to remove red eye.

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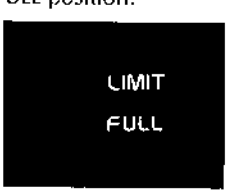
* Depending on the lens model, you may hear a sound from inside the lens when the lens is shaken lightly. This is the sound of the ball bearings that are designed to smooth the action of the focus ring. It does not indicate a problem with the general functioning of the lens.

[AT-X M35 PRO DX]

◗ Limiting the Focus Distance Range

This lens is equipped with a focus-limiting switch, which makes it ideal for use as a moderate telephoto or portrait lens. Lock the lens out of the macro range and shorten the focusing time by setting this switch to the LIMIT position instead of the FULL position.

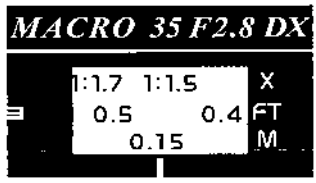


FULL: The lens will focus from 0.14m to infinity.

LIMIT: The lens will focus from approximately 0.2m to infinity or from approximately 0.18m to 0.14m.

● Macro Magnification

"Macro magnification" refers to the ratio of the image captured on the image sensor to the actual subject size. For example, if a subject 3cm in size is captured as a 1cm image on the image sensor, the magnification is "1:3." The macro magnification is indicated above the focus distance. In the example shown at right, the focus distance is 0.15m, while the macro magnification is approximately 1:1.5.



<Effective F-Value and Exposure Magnification>

The F-value shown on the lens indicates the brightness of a subject located at infinity. If the macro magnification is raised, the brightness of the subject will decrease. This reduced brightness is called the "effective F-value," while the exposure correction corresponding to the decrease in subject brightness is called "exposure magnification."

* If you are doing macro photography using a Nikon mount, the display on the camera body will indicate a change in aperture as the focus distance approaches the minimum value, even when the lens's F-value is set to F2.8 (fully open), until the effective F-value finally reaches F4.5.

● Exposure Correction

When the macro magnification is increased, the brightness on the image sensor will decrease. On a TTL auto-focus camera or when shooting with a TTL flash, the quantity of light passing through the lens is measured and the exposure is corrected automatically.

If the exposure is measured using an external light meter or when a non-dedicated external flash is used, the exposure must be corrected by a corresponding increase (in exposure magnification) equal to the decrease in brightness from the change in macro magnification.

The table shown at right lists the exposure magnifications for the different macro magnifications applicable to the AT-X M35PRO DX lens.

<Macro Magnifications in the Exposure Magnification Table>

The table shown at right lists the exposure magnifications and aperture openings at different macro magnifications of 1:10 and above. If you don't want to change the aperture setting, correct the exposure by changing the shutter speed.

Macro magnification	Exposure magnification	Aperture openings
1 : 10	1.13	1/5
1 : 7	1.18	1/5
1 : 5	1.26	1/3
1 : 4	1.34	1/3
1 : 3	1.47	1/2
1 : 2.5	1.57	2/3
1 : 2	1.74	4/5
1 : 1.7	1.91	1
1 : 1.5	2.06	1
1 : 1.3	2.27	1 1/5
1 : 1.2	2.41	1 1/3
1 : 1.1	2.58	1 1/3
1 : 1	2.80	1 1/2

■ Performance Table

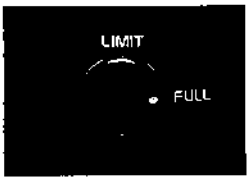
Item / Model	Focus distance/ brightness	Optical structure elements/groups	Angle of view	Minimum f distance
AT-X 107 DX	10~17mm F3.5~4.5	10—8	180°~100°	0.14
AT-X 116 PRO DX	11~16mm F2.8	13—11	104°~82°	0.3
AT-X 124 PRO DX	12~24mm F4	13—11	99°~61°	0.3
AT-X 165 PRO DX	16~50mm F2.8	15—12	82°4'~31°3'	0.3
AT-X 535 PRO DX	50~135mm F2.8	18—14	31°3'~11°8'	1.0
AT-X 840 D	80~400mm F4.5~5.6	16—10	29°50'~6°13'	2.5
AT-X M35 PRO DX	35mm F2.8	9—8	43°	0.14
AT-X M100 PRO D	100mm F2.8	9—8	24°30'	0.3

※ The CE Mark (certification mark for conformance with the

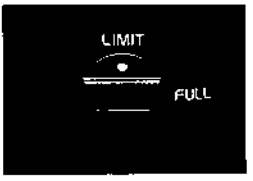
【*AT-X M100 PRO D*】

● Limiting the Focus Distance Range

This lens is equipped with a focus-limiting switch, which makes it ideal for use as a moderate telephoto or portrait lens. Lock the lens out of the macro range and shorten the focusing time by setting this switch to the LIMIT position instead of the FULL position.



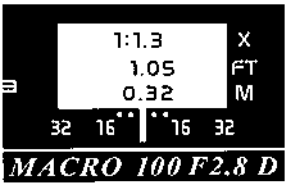
FULL: The lens will focus from 0.3m to infinity.



LIMIT: The lens will focus from approximately 0.38m to infinity or from approximately 0.3m to 0.36m.

● Macro Magnification

"Macro magnification" refers to the ratio of the image captured on film to the actual subject size. For example, if a subject 3cm in size is captured as a 1cm image on film, the magnification is "1:3." The macro magnification is indicated above the focus distance. In the example shown at right, the focus distance is 0.32m, while the macro magnification is approximately 1:1.3.



<Effective F-Value and Exposure Magnification>

The F-value shown on the lens indicates the brightness of a subject located at infinity. If the macro magnification is raised, the brightness of the subject will decrease. This reduced brightness is called the "effective F-value," while the exposure correction corresponding to the decrease in subject brightness is called "exposure magnification."

* If you are doing macro photography using a Nikon mount, the display on the camera body will indicate a change in aperture as the focus distance approaches the minimum value, even when the lens's F-value is set to F2.8 (fully open), until the effective F-value finally reaches F5.6.

● Exposure Correction

When the macro magnification is increased, the brightness at the film plane will decrease. On a TTL auto-focus camera or when shooting with a TTL flash, the quantity of light passing through the lens is measured and the exposure is corrected automatically.

If the exposure is measured using an external light meter or when a non-dedicated external flash is used, the exposure must be corrected by a corresponding increase (in exposure magnification) equal to the decrease in brightness from the change in macro magnification.

The table shown at right lists the exposure magnifications for the different macro magnifications applicable to the AT-X M100PRO D lens.

<Macro Magnifications in the Exposure Magnification Table>

The table shown at right lists the exposure magnifications and aperture openings at different macro magnifications of 1:10 and above. If you don't want to change the aperture setting, correct the exposure by changing the shutter speed.

Macro magnification	Exposure magnification	Aperture openings
1 : 10	1.23	1/3
1 : 7	1.33	2/5
1 : 5	1.47	1/2
1 : 4	1.59	2/3
1 : 3	1.82	4/5
1 : 2.5	2.01	1
1 : 2	2.31	1 1/5
1 : 1.7	2.60	1 2/5
1 : 1.5	2.88	1 1/2
1 : 1.3	3.24	1 2/3
1 : 1.1	3.80	1 4/5
1 : 1	4.00	2

● Note on Macro Photography

In macro photography, the subject and lens become very close and the magnification increases as a result. Therefore, even a slight vibration or movement of the camera can affect the quality of photographs. In macro photography, hold the camera securely to eliminate vibrations. For vibration-free photographs Tokina highly recommends the use of a tripod, cable release and/or a wireless remote control and an external flash.

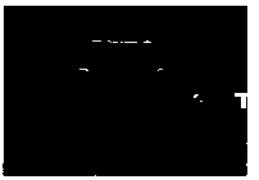
【*AT-X 840 D*】

● Zoom Lock Mechanism

When the lens is tilted downward in the Wide mode, the zoom assembly comes down toward the telephoto side due to the weight of the assembly. The zoom lock mechanism locks the zoom assembly so that it will not move. This way, you can carry the camera in the Wide mode (a compact configuration).

* To lock, turn the zoom ring to the widest point (80 mm), and then pull the Zoom Lock button toward the rear of the lens. (See photographs ① and ②.)

Note) Zoom lock is engaged only when the focus distance is 80 mm. Do not attempt to forcibly lock the zoom assembly at any other focus distance, since it will damage the zoom lock mechanism.



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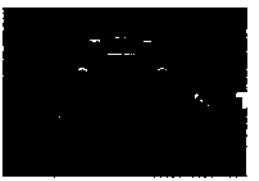

② * Locked

■ Precautions for Use

● Attaching a lens hood

Unlike a SLR camera using a silver halide film , a digital SLR camera produces a large measure of reflection due to its solid-state imaging device. It is therefore recommended that a lens hood be attached when you're taking photographs with a digital SLR camera. Especially when a wide lens is used, a lens hood should be attached even indoors.

● The DX lens is designed exclusively for a digital SLR camera of APS-C size.

Tokina's DX lens is deigned exclusively for use with a digital SLR camera of APS-C size. Using the lens with a digital SLR camera with a solid-state imaging device of a size larger than APS-C, or with a SLR camera designed for silver-halide film, will cause vignetting.

cus m)	Maximum macro magnification	Minimum aperture	Number of aperture diaphragms	Filter size (mm)	Overall length (mm)	Maximum diameter (mm)	Weight (g)	Lens hood
	1 : 2.56	22	6	—	71.1	70.0	350	—
	1 : 11.6	22	9	77	89.2	84	560	BH77A
	1 : 8	22	9	77	89.5	84	570	BH779
	1 : 4.88	22	9	77	97.4	84	620	BH777
	1 : 5.89	22	9	67	135.2	78.2	845	BH671
	1 : 5.4	32	8	72	136.5	79	990	BH725
	1 : 1	22	9	52	60.4	73.2	340	MH522
	1 : 1	32	9	55	95.1	73	540	BH551

The specification data is based on the use of the lens with a Nikon camera.
uropean export inspection requirements) is shown on lenses containing electronic parts.

圖麗鏡頭

使用說明書

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AT-X M100 PRO D	*100mm F2.8 Macro*

D 系列

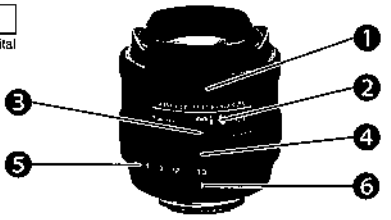
中國語

ENGLISH

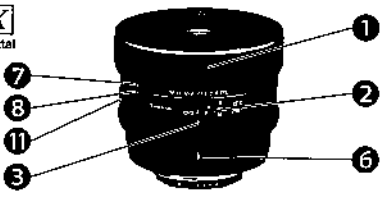
●部品名稱

❶ 手動對焦環	❻ 中央指標	⓫ 對焦鎖掣
❷ 對焦距離刻度	❼ AF位置	⓬ 變焦鎖掣
❸ 對焦距離指標	❽ MF位置	⓭ 三腳架螺絲接口
❹ 變焦環	❾ 遮光罩裝卸指標	⓮ 三腳架指標
❺ 焦距刻度	❿ 光圈環	⓯ 三腳架環

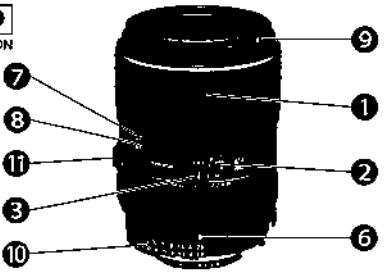
AT-X 107 DX
TO FIT NIKON Digital



AT-X M35 PRO DX
TO FIT NIKON Digital

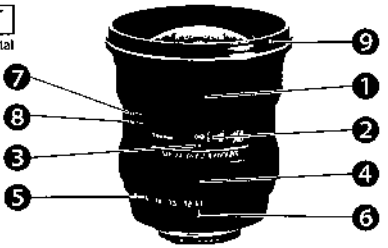


AT-X M100 PRO D
TO FIT NIKON



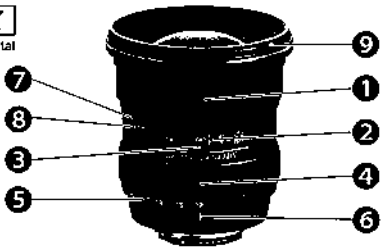
AT-X 116 PRO DX

TO FIT NIKON Digital



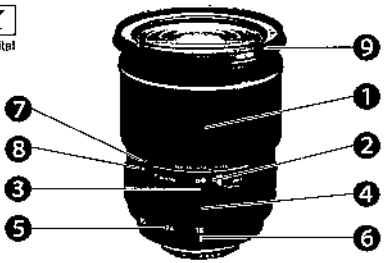
AT-X 124 PRO DX

TO FIT NIKON Digital



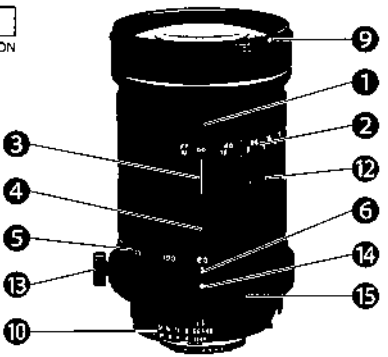
AT-X 165 PRO DX

TO FIT NIKON Digital



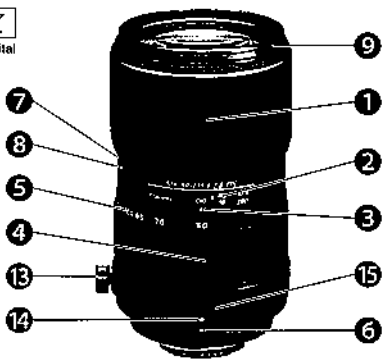
AT-X 840 D

TO FIT NIKON



AT-X 535 PRO DX

TO FIT NIKON Digital



圖麗D系列鏡頭是APS-C格式CCD影像感應器數碼單反相機的專用鏡頭，不可用於CCD影像感應器比APS-C格式CCD更大的數碼單反相機及傳統35mm單反相機。
D系列只適用於APS-C格式CCD影像感應器數碼單反相機或APS傳統單反相機。

■More Information
DEUTSCH
FRANÇAIS
ESPAÑOL
ITALIANO
www.tokinalens.com

Tokina

Tokina Co., Ltd
120-4 Nozuta-Machi, Machida-Shi, Tokyo 195-0063, Japan

●鏡頭的裝卸方法

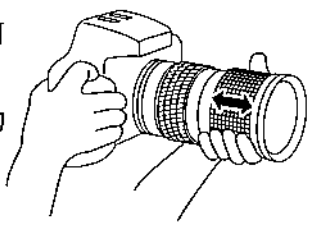
關於鏡頭的裝卸，請參照相機廠家的使用說明書。
■裝卸時請注意不要觸摸或磕碰與機身接觸面的電子接點

●對焦

將機身側面的自動/手動互換鈕推至AF位置，機身即會自動對焦。手動對焦時，一邊瞄取景器，一邊調節手動對焦環。這支鏡頭亦可通過對焦輔助裝置進行調焦。

●鈕式對焦切換裝置

（從AF位置到MF位置的切換方法）
在手動對焦環的任何位置，對其前後推拉，即可切換AF與MF。
※尼康及佳能卡口，即使不將機身或鏡頭側面的選擇鈕推到手動位置，也可進行手動操作。而在自動位置，手動對焦環可自由回轉



●遮光罩

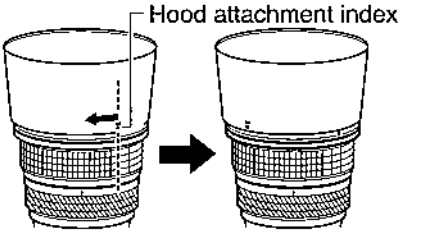
遮光罩是設計來避免鏡頭前方的強光或側面的雜散光線射入，而引起照片產生霧化和出現鬼影散像。爲保證拍攝到顏色鮮明和影像清晰的照片，亦爲保護鏡頭和保持鏡片清潔，建議你經常使用遮光罩。
※AT-X 124PRO DX/AT-X 165PRO DX/AT-X M100PRO D/AT-X 840 D AT-X 535PRO DX的遮光罩，在收藏時可反過來套裝在鏡頭前部。

<如何安裝遮光罩>

[AT-X M100 PRO D]

將遮光罩上的(●)標誌對準鏡頭上裝卸遮光罩IN●的標誌，然後順時針轉動遮光罩直到確實卡緊爲止；切勿緊力握住遮光罩的前端來安裝或拆除，應該輕力握住遮光罩的下部緊接鏡頭轉動來銜接。

AT-X M100 PRO D

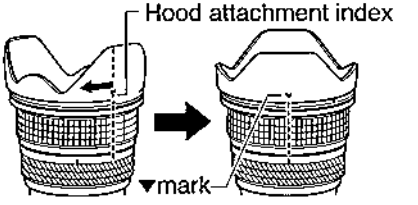


[AT-X 116 PRO DX]
[AT-X 124 PRO DX]
[AT-X 165 PRO DX]
[AT-X 535 PRO DX]

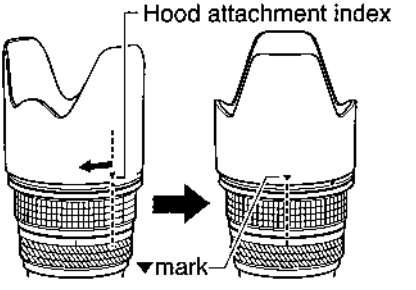
穩固安裝遮光罩，將遮光罩上的(●)標誌對準鏡頭上裝卸遮光罩IN●的標誌，然後順時針轉動遮光罩直至聽到卡聲鎖緊爲止。

確認正確安裝，可以從鏡頭前端觀察遮光罩上的▼是否與鏡頭上中央指標。

AT-X 116 PRO DX | AT-X 124 PRO DX | AT-X 165 PRO DX



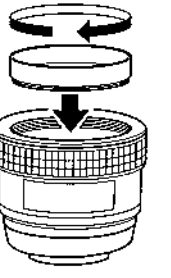
AT-X 535 PRO DX



[AT-X M35 PRO DX]

AT-X M35 PRO DX在出厂時已經固定好了附加鏡筒，用于安裝PL濾光片。在近距離攝影時如果有妨碍的話，請把附加鏡筒拧下来。

AT-X M35 PRO DX

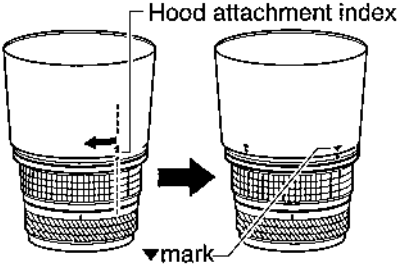


[AT-X 840 D]

穩固安裝遮光罩，將遮光罩上的(●)標誌對準鏡頭上裝卸遮光罩IN●的標誌，然後順時針轉動遮光罩直至聽到卡聲鎖緊爲止。

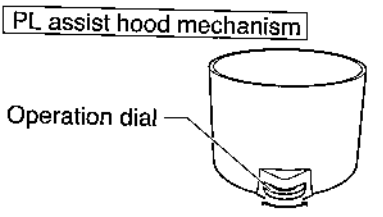
確認正確安裝，可以從鏡頭前端觀察遮光罩上的▼是否與鏡頭上(●)標誌對準。

AT-X 840 D



<可調校PL偏光鏡的遮光罩>

AT-X840 D 遮光罩設有特別的調校PL偏光鏡系統，安裝好PL偏光鏡和遮光罩後，就可以轉動遮光罩外的膠輪來調校PL偏光鏡拍攝。



PL偏光鏡

建議你使用Hoya PRO 1 Digital Circular PL (W)或Circular PL偏光鏡，如果採用其他牌子應事先確定是否適合使用。

當安裝或拆除時切勿緊握遮光罩上的PL膠輪部份，否則會難以裝上或移除;應該輕力握住遮光罩的下部緊接鏡頭轉動來銜接。

※當安裝遮光罩時，應轉動遮光罩直至聽到卡聲穩固鎖緊爲止 ， 如果安裝不正當，畫面會因周邊光線不足而造成四周暗角。

●濾色鏡

請選用螺旋式濾色鏡, 如鏡片上有污迹或水滴，則不能拍出清晰的照片。故請務必將鏡片清潔後, 方才使用拍照。

※切記一次只能使用一枚濾色鏡片，如將兩片重疊使用，或用較厚的偏光鏡時，會有可能產生暗影。

●使用內置式閃光燈的注意事項

使用內置式閃光燈攝影時，一部分光線會被鏡頭遮住，鏡頭的黑影將出現在畫面上。因此，近距攝影時請使用附加閃光燈。

●閃光燈攝影(紅眼現象)

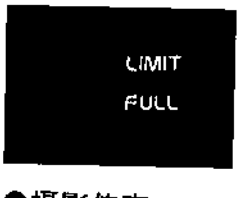
用閃光燈進行人物拍攝時，有時會產生紅眼現象。解決辦法，請參照各廠家相機機身使用說明書。

※有些鏡頭，在拿起輕輕晃動時，會出現響動。這是為使變焦環動作平緩圓滑，內部裝置的球型軸承發出的聲響。對一般攝影沒有影響。

【AT-X M35 PRO DX】

●攝影距離範圍的切換

裝有對焦限制器開關(Focus Limiter Switch)，最適合在一定攝影範圍之內的拍攝。適當地切換此開關，便可縮短對焦的時間。

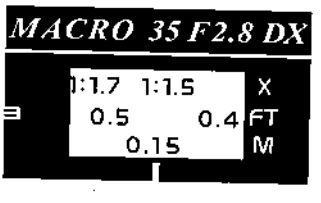


FULL: 從無限遠到最短攝影距離0.14m的全區域內可對焦。

LIMIT: 從無限遠到0.2m, 或從0.18m到0.14m的兩個範圍內進行對焦。

●攝影倍率

攝影倍率是指映在焦平面上畫像的大小與被攝物體實際大小的比率。如3cm大的被攝物體，映在焦平面上的大小是1cm時，它的攝影倍率是1:3。近攝倍率，可用"攝影距離表示"上面的"倍率表示"來確認。如右邊的攝影距離是0.15m，則近攝倍率為1:1.5倍。



〔實效F值與曝光倍數〕

在鏡頭上出現的F值是無限遠時，被攝物體亮度的表示。攝影時隨著攝影倍率的遞增，被攝物體的亮度遞減。此時的亮度叫做實效F值，被攝物體亮度減少的部分由曝光來補正，叫做曝光倍數。

※尼康卡口在近攝時，即使鏡頭的F值設定在開放值(F2.8)上，隨著機身上的表示越是接近最短攝影距離，亮度變得越暗，實效F值最終只能達到F4.5。

【AT-X 840 D】

●變焦鎖掣

當鏡頭在處於廣角鏡模式及向下垂時，鏡頭會因為結構和重量自動伸出至遠攝鏡的位置。變焦鎖掣可以把鏡頭鎖定在廣角鏡模式，保持短少的體積方便，帶。

※將變焦環轉到80mm廣角鏡位置，再把變焦鎖掣上的按鈕向後拉就可以鎖住變焦環(參考圖片①、及②)

①

② * Locked

備注) 變焦鎖掣只可以在80mm 廣角鏡位置鎖定變焦環，切勿強行在其他位置使用暴力推動，否則會很容易損壞變焦鎖的結構。

■使用注意事項

●鏡頭遮光罩的裝卸

必需使用遮光罩。

數碼單反相機的CCD影像感應器與傳統膠片不同，因反射光強，特別是廣角鏡頭，即使室內攝影，也推薦使用遮光罩。

●DX鏡頭是 APS-C 格式CCD影像感應器數碼單反相機的專用鏡頭，用於CCD影像感應器比APS-C格式CCD更大的數碼單反相機及35mm傳統單反相機時，會出現暗角。

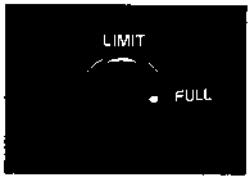
影距離 m)	近攝最大倍率	最小光圈	組-片光圈葉片數	濾鏡尺寸 (mm)	全長 (mm)	最大口徑 (mm)	重量 (g)	遮光罩
.14	1 : 2.56	22	6	—	71.1	70.0	350	—
.3	1 : 11.6	22	9	77	89.2	84	560	BH77A
.3	1 : 8	22	9	77	89.5	84	570	BH779
.3	1 : 4.88	22	9	77	97.4	84	620	BH777
.0	1 : 5.89	22	9	67	135.2	78.2	845	BH671
.5	1 :5.4	32	8	72	136.5	79	990	BH725
.14	1 : 1	22	9	52	60.4	73.2	340	MH522
.3	1 : 1	32	9	55	95.1	73	540	BH551

上述數據均為採用尼康相機測試之結果

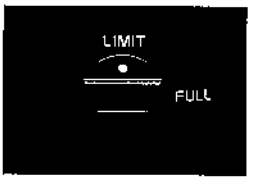
【*AT-X M100 PRO D*】

●攝影距離範圍的切換

裝有對焦限制器開關(Focus Limiter Switch)，最適合在一定攝影範圍之內的拍攝。適當地切換此開關，便可縮短對焦的時間。



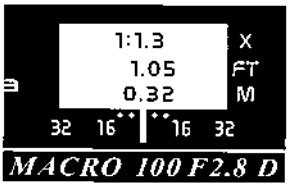
FULL: 從無限遠到最短攝影距離0.35m的全區域內可對焦。



LIMIT: 從無限遠到0.38m, 或從0.36m 到0.3m的兩個範圍內進行對焦。

●攝影倍率

攝影倍率是指映在底片上畫像的大小與被攝物體實際大小的比率。如3m大的被攝物體，映在底片上的大小是1cm時，它的攝影倍率是1:3。近攝倍率，可用"攝影距離表示"上面的"倍率表示"來確認。如右邊的攝影距離是0.32m，則近攝倍率為1:1.3倍。



〔實效F值與曝光倍數〕

在鏡頭上出現的F值是無限遠時，被攝物體亮度的表示。攝影時隨著攝影倍率的遞增，被攝物體的亮度遞減。此時的亮度叫做實效F值，被攝物體亮度減少的部分由曝光來補正，叫做曝光倍數。

※尼康卡口在近攝時，即使鏡頭的F值設定在開放值(F2.8)上，隨著機身上的表示越是接近最短攝影距離，亮度變得越暗，實效F值最終只能達到F5.6。

●曝光補正

隨攝影倍率的遞增，膠片上的亮度遞減。有TTL測光裝置的自動曝光相機，或由TTL測光的閃光燈攝影時，光量可經過測量後自動進行調節補正。用外部的曝光計測試曝光，或使用外部的調節閃光燈時，由於攝影倍率變化而減少的亮度，須由曝光來補正。

右表是AT-X M100PRO D的攝影倍率及曝光倍數表。

{曝光倍數表攝影倍率}

右表是在1:10以上時的曝光倍數及光圈開放量的表示。不改變光圈拍攝時，與快門速度並用，並同時補正曝光。

攝影倍率	曝光倍數	光圈開放量
1：10	1.23	1/3
1：7	1.33	2/5
1：5	1.47	1/2
1：4	1.59	2/3
1：3	1.82	4/5
1：2.5	2.01	1
1：2	2.31	1 1/5
1：1.7	2.60	1 2/5
1：1.5	2.88	1 1/2
1：1.3	3.24	1 2/3
1：1.1	3.80	1 4/5
1：1	4.00	2

●近攝的注意事項

近攝時被攝體與鏡頭的距離非常之接近，由於倍率變高，絲毫的手顫都會對相片有很大影響。因此，攝影時定要握穩相機。為能取得平穩安定的圖像，建議攝影時採用三角架，及外部閃光燈。

●鏡頭遮光罩的裝卸

必需使用遮光罩。數碼單反相機的CCD影像感應器與傳統膠片不同，因反射光強，特別是廣角鏡頭，即使室內攝影，也推薦使用遮光罩。

●曝光補正

隨攝影倍率的遞增，焦平面上的亮度遞減。有TTL測光裝置的自動曝光相機，或由TTL測光的閃光燈攝影時，光量可經過測量後自動進行調節補正。用外部的曝光計測試曝光，或使用外部的調節閃光燈時，由於攝影倍率變化而減少的亮度，須由曝光來補正。

右表是 AT-X M35PRO DX 的攝影倍率及曝光倍數表。

{曝光倍數表攝影倍率}

右表是在1:10以上時的曝光倍數及光圈開放量的表示。不改變光圈拍攝時，與快門速度並用，並同時補正曝光。

攝影倍率	曝光倍數	光圈開放量
1：10	1.13	1/5
1：7	1.18	1/5
1：5	1.26	1/3
1：4	1.34	1/3
1：3	1.47	1/2
1：2.5	1.57	2/3
1：2	1.74	4/5
1：1.7	1.91	1
1：1.5	2.06	1
1：1.3	2.27	1 1/5
1：1.2	2.41	1 1/3
1：1.1	2.58	1 1/3
1：1	2.80	1 1/2

■性能表

專案 / 機種	焦距・亮度	鏡片構成盡面	視角	最短
AT-X107 DX	10～17mm F3.5～4.5	10－8	180°～100°	
AT-X116 PRO DX	11～16mm F2.8	13－11	104°～82°	
AT-X124 PRO DX	12～24mm F4	13－11	99°～61°	
AT-X165 PRO DX	16～50mm F2.8	15－12	82°4'～31°3'	
AT-X535 PRO DX	50～135mm F2.8	18－14	31°3'～11°8'	
AT-X840 D	80～400mm F4.5～5.6	16－10	29°50'～6°13'	
AT-X M35 PRO DX	35mm F2.8	9－8	43°	
AT-X M100 PRO D	100mm F2.8	9－8	24°30'	