

Nikon

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マクロスピードライト
Macro Speedlight

SB-21

使用説明書

Instruction Manual

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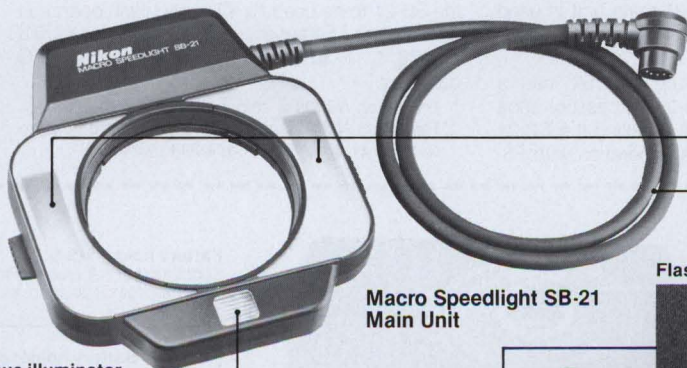
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FOREWORD

Thank you for your kind patronage of Nikon. We hope the Nikon Macro Speedlight SB-21 will make photography a much bigger part of your life. Get to know your SB-21, but before using it, be sure to read this manual and the instruction manuals for your camera and lenses.

Nikon cannot be held responsible for malfunction resulting from use of the SB-21 other than as specified in this manual, or from use of the SB-21 with a camera made by a manufacturer other than Nikon.

NOMENCLATURE



Flash modules

Power cord

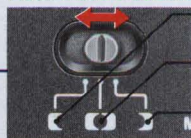
Macro Speedlight SB-21
Main Unit

Focus illuminator

Focus illuminator button

When ambient light is insufficient for focusing, push the focus illuminator button to provide illumination (see page 41 for details).

Flash module selector



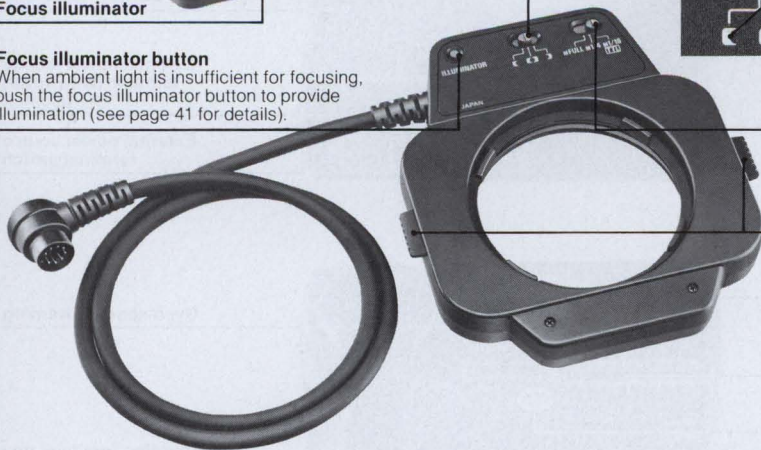
To fire left flash module only

To fire both flash modules

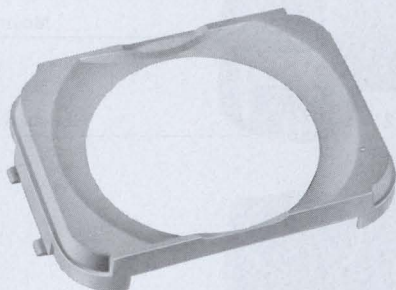
To fire right flash module only

Light output selector

For TTL auto flash operation, always set to TTL position.



Mounting levers



Condenser Adapter SW-8

With a flash-to-subject distance closer than 40mm, attach the SW-8 to the SB-21 flash modules; with a flash-to-subject distance of 40mm or longer, remove the SW-8.



52mm adapter ring



62mm adapter ring

Two controllers, the AS-12 and AS-14, are available for use with the SB-21 main unit. Depending on which controller the SB-21 main unit is used with, it will be identified as the SB-21A and SB-21B.

The AS-12, controller for the SB-21A, has a special foot for attaching to the accessory shoe of Nikon F3-series cameras, enabling the SB-21 to be used for TTL auto flash operation with F3-

series cameras. The AS-14, controller for the SB-21B, has an ISO-type mounting foot, enabling the SB-21 to be used for TTL auto flash operation with Nikon F4-series, F-801/N8008*, F-501/N2020**, F-301/N2000**, FA, FE2 or FG cameras.

* The Nikon N8008 is sold exclusively in the U.S.A.

**The Nikon N2020 and N2000 cameras are sold exclusively in U.S.A. and Canadian markets.

Aperture/reproduction ratio dial

Flash terminal

Accepts power cord of the SB-21 main unit.

Ready-light/under exposure warning

Also used as open-flash button—push to fire flash without releasing shutter. For ready-light indications, see page 40.

Power/flash mode switch

Setting to M (manual) or TTL turns on the SB-21.

TTL multiple flash terminal

See page 42.

Battery holder MS-6

Contains four AA-type penlight batteries; for installation, see page 32.

Battery holder clip

External power source terminal (with cover)

See page 44.

External power source terminal switch



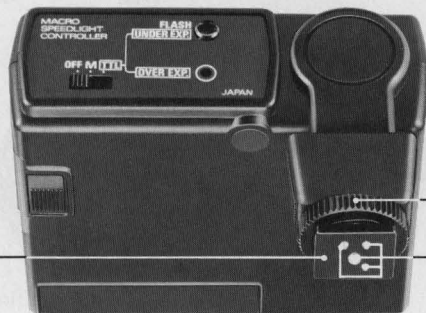
Overexposure warning

Mounting foot lock ring

Mounting foot

Controller AS-12

Hot-shoe contacts



Mounting foot lock nut

Mounting foot

Hot-shoe contacts

Controller AS-14

Aperture indicator lines

Light output indexes

See page 38.

Lens focal length scales

Use white lines for lenses in normal position, red lines for lenses in reverse position.

ISO film speed scale

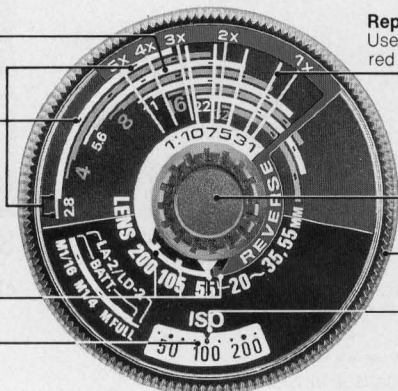
Reproduction ratio scales

Use white lines for lenses in normal position, red lines for lenses in reverse position.

Lens selector knob

Film speed ring

Film speed index



Aperture/reproduction ratio dial

- To ensure proper protection for the SB-21, be sure to leave the expanded polystyrene in the leatherette case.

BEFORE USING THE SB-21

- Do not fire the flash close to anyone's eyes.
- The SB-21 is primarily designed for stereoscopic shooting. It should not be used for reproducing documents with a glossy surface.
- With the Nikon F-401s/N4004s*, the SB-21 cannot be used for TTL auto flash, or as a slave unit for TTL multiple flash photography.

* The Nikon N4004s is sold exclusively in the U.S.A.

USABLE LENSES

Most lenses with a 52mm or 62mm filter attachment can be used with the SB-21. Certain lenses, however, require special care.

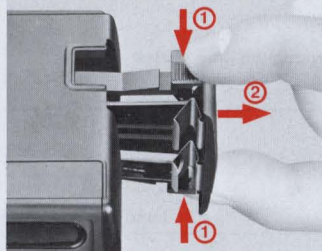
With AF Nikkor lenses, focus manually. AF Micro-Nikkor 60mm f/2.8 and AF Micro-Nikkor 105mm f/2.8 can be used for both autofocus and manual focus. However, when the SB-21 is used with other AF Nikkor lenses, performing autofocus may damage the camera. **AF Zoom-Nikkor lenses cannot be used with the SB-21.** As the focusing ring on these lenses is so light, they will not remain in the focus position when the SB-21 is attached.

With non-AF zoom lenses:

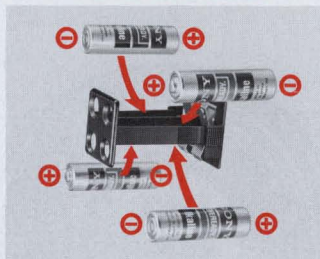
- Focusing a zoom lens with the SB-21 attached causes the SB-21 main unit to rotate. If necessary, remove the SB-21 after focusing, then reattach it in the desired position. Also note that even slight pressure on the SB-21 main unit may move the lens focusing ring resulting in an out-of-focus image.
- With a zoom lens, always perform TTL auto flash shooting. In manual flash shooting, the proper aperture for the zoom lens cannot be read from the SB-21's exposure calculator dial.
- Vignetting may occur in the following cases:
 - When using Zoom Nikkor 35-70mm f/3.5, in normal position, at 35mm focal length for shooting a subject located near the closest focusing distance.
 - When using Zoom-Nikkor 35-135mm f/3.5-f/4.5, in normal position, for macro focusing.

Lenses shorter than 35mm cannot be used in normal position. Vignetting may occur when these lenses are used in normal position. Use in reverse position.

INSTALLING BATTERIES IN CONTROLLER

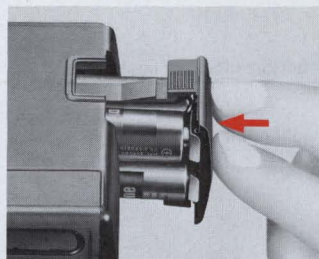


1. Depress battery holder clips and remove battery holder MS-6.



2. Install four AA-type penlight batteries.

Be sure to install the batteries as shown on the battery holder.



3. Push battery holder into battery chamber until it clicks into place.

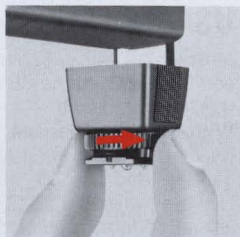
Use 1.5V AA-type alkaline-manganese or zinc carbon batteries, or 1.2V NiCd batteries.
For further information, see "ABOUT BATTERIES," page 46.

ATTACHING CONTROLLER AND SB-21 MAIN UNIT

With AS-12

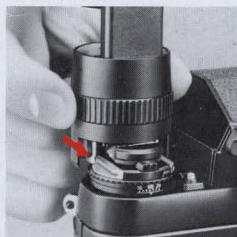


With AS-14

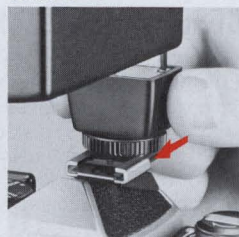


1. Turn the mounting foot lock ring of the AS-12 or lock nut of the AS-14 clockwise as far as it goes.

With AS-12



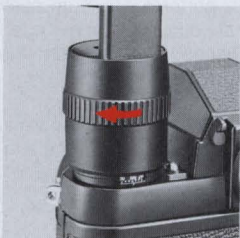
With AS-14



2. Slide mounting foot forward into the accessory shoe as far as it goes.

Before attaching the AS-12 to an F3-series camera, make sure the camera's film speed setting is correct; film speed cannot be set with the AS-12 already mounted.

With AS-12



With AS-14



3. Tighten lock ring or lock nut firmly.

With AS-12



With AS-14

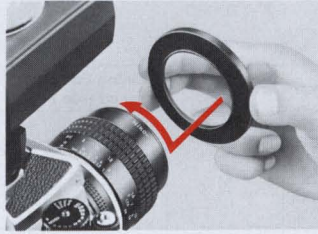


4. Turn the controller to the horizontal position so that the aperture/reproduction ratio dial is on top.

5. Attach the SB-21 to the lens.

Depending on the desired effect, you can attach the SB-21 in either horizontal or vertical position.

With lens in normal position



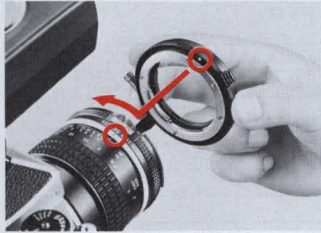
a. Screw the 62mm or 52mm adapter ring into the front lens mount.



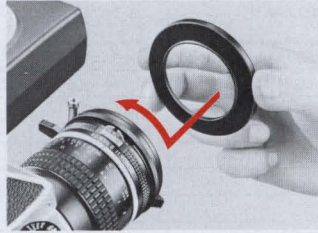
b. Depress the mounting levers on both sides and attach the SB-21 to the adapter ring.

With lens in reverse position

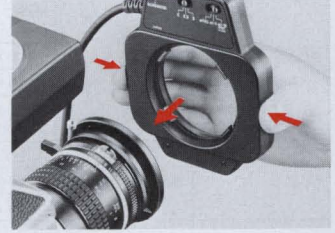
Optional Auto Adapter Ring BR-6 is required.



a. Attach the BR-6 to the lens.



b. Screw the 52mm adapter ring into the BR-6.



c. Depress the mounting levers on both sides and attach the SB-21 to the adapter ring.

When using the Nikon Bellows Focusing Attachment PB-6:

To mount the lens to the PB-6 in reverse position when using the SB-21, use the optional Macro Adapter Ring BR-2A between the bellows and the lens.



6. Connect the SB-21 Main Unit and controller.

Insert the plug from the SB-21's power cord into the controller's flash terminal; align the rib inside the plug with the notch inside the terminal.

SETTING CAMERA SHUTTER SPEED

Set the camera's shutter speed, referring to the table below. As shown in the table, an automatic sync speed setting is available with most Nikon cameras.

Nikon camera	Synchronization speed (sec.)	Camera setting		Running Shutter speed (sec.)	Viewfinder shutter speed indication
F4-series	1/250 or slower	Shutter speed	Exposure mode	1/250	LCD shows 250
		1/8000 ~ 1/500 sec.	M		
F-801/N8008	1/250 or slower	1/250 ~ 4 sec., X, Band T*		M	as set
		1/8000 ~ 1/500 sec.	1/250		LCD shows 250
F3-series (via AS-4 or AS-7 coupler)	1/80 or slower	1/250 ~ 30 sec. and B	M	as set	LCD shows manually set shutter speed
		A		1/80	LCD shows 80
FA	1/250 or slower	1/2000 ~ 1/125 sec.	M250 and B in P, S, A and M modes**	1/80	LCD shows M80
		1/60 ~ 8 sec., X, B and T*		as set	LCD shows manually set shutter speed; no indication at B or T
		All shutter speed settings except M250 and B in A mode		1/250	LCD shows 250
FE2	1/250 or slower	1/4000 ~ 1/500 sec. in M mode	M250 and B**	1/250	LCD shows M250
		1/250 ~ 1 sec. in M mode		as set	LCD shows manually set shutter speed
		A, 1/4000 ~ 1/500 sec.		1/250	—
F-501/N2020	1/125 or slower	1/250 ~ 8 sec.	M250 and B**	as set	—
		A, 1/2000 ~ 1/250 sec.		1/125	125 lights up and LED for proper non-flash shutter speed blinks
		1/125 ~ 1 sec. and B		as set	LED for manually set shutter speed lights up and LED for proper non-flash shutter speed blinks; no indication at B
F-401s/N4004s	1/100 or slower	Shutter speed dial	Aperture dial	1/100	—
		1/125 ~ 1/2000 sec.	•1.4 ~ 32		
		1/60 ~ 1 sec. and B	•1.4 ~ 32	as set	
F-301/N2000	1/125 or slower	A, 1/2000 ~ 1/250 sec.	M250 and B**	1/125	125 lights up and LED for proper non-flash shutter speed blinks
		1/125 ~ 1 sec. and B		as set	LED for manually set shutter speed lights up, and LED for proper non-flash shutter speed blinks; no indication at B
FG	1/90 or slower	A, 1/1000 ~ 1/125 sec.	M90 and B**	1/90	Two LEDs representing 1/90 sec. light up
		1/60 ~ 1 sec.		as set	LED for manually set shutter speed lights up
		1/250 ~ 1 sec. and B		as set	No indication
FM2	1/250 or slower	A, 1/1000 ~ 1/125 sec.	M90 and B	1/90	—
FG-20	1/90 or slower	1/60 ~ 1 sec., M90 and B		as set	—

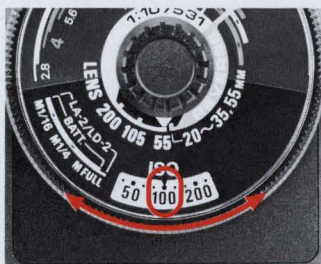
* For TTL auto flash operation, the T setting cannot be used with the camera's backup mechanical release lever.

** Cannot be used for TTL auto flash operation.

TTL AUTO FLASH SHOOTING



1. Set the light output selector on the SB-21 to the TTL position.

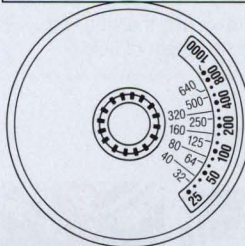


2. Turn the film speed ring on the controller's aperture/reproduction ratio dial until the film speed index is opposite the film speed in use.

For TTL auto flash shooting with the controller AS-12, use only Nikon F3-series cameras. With the AS-14, use only Nikon F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-301/N2000 or FG cameras.

Usable film speed range for TTL auto flash operation

With F3-series, FA, FE2 and FG	ISO 25 to 400
With F4-series, F-801/N8008, F-501/N2020 and F-301/N2000	ISO 25 to 1000



The two dots between the numbers on the film speed scale stand for intermediate settings.

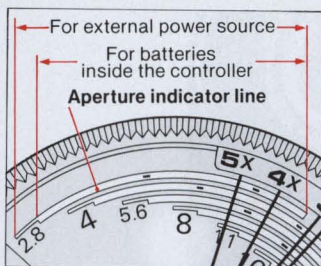
3. Turn lens selector knob to set lens index.



With lens in normal position:
Set the lens index on the controller to the focal length of the lens in use. With lenses not listed on the scale, use intermediate settings.



With lens in reverse position (55mm Micro-Nikkor or 20mm to 35mm Nikkor lens only):
Set lens index to the red "REVERSE" position.

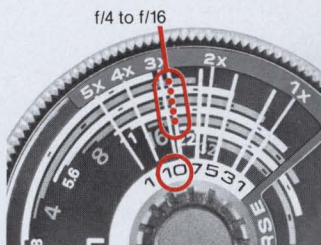


4. Select and set aperture.

When the SB-21 is powered by batteries inside the controller, usable apertures are indicated by the aperture indicator lines (excluding narrow line-end) which intersect the reproduction scale.

When the SB-21 is powered by the external power source LA-2 or LD-2, usable apertures are indicated by the aperture indicator lines (including narrow line-end).

For a high reproduction ratio, use the smallest possible aperture for greater depth of field.

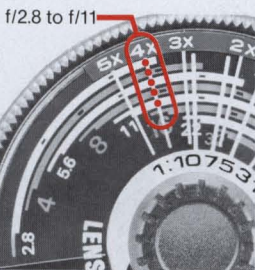


With lens in normal position:

For desired reproduction ratio, follow the line from the white reproduction ratio scale and read the usable apertures.

For example, when the SB-21 is powered by batteries inside the controller, to obtain a 1:10 reproduction ratio with ISO 100 film and Micro-Nikkor 55mm f/2.8 lens in normal position, use apertures from f/4 to f/16.

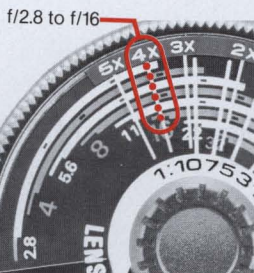
For usable apertures with a reproduction ratio lower than 1:10, see page 40.



With the lens in reverse position:

For the desired reproduction ratio, follow the line from the red reproduction ratio scale and read the usable apertures.

For example, when the SB-21 is powered by batteries inside the controller, to obtain a 4x (4:1) reproduction ratio with ISO 100 film and Micro-Nikkor 55mm f/2.8 lens in reverse position, use apertures from f/2.8 to f/11.

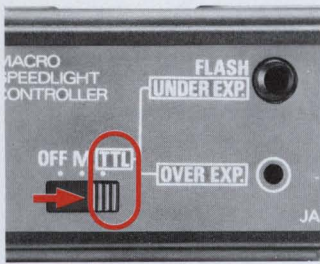


When the SB-21 is powered by external power source:

For example, to obtain 4x reproduction ratio with ISO 100 film and the Micro-Nikkor 55mm f/2.8 lens in reverse position, usable aperture extends to f/2.8 to f/16.

With the Condenser Adapter SW-8 attached:

The usable aperture range shifts to 1/2 spot smaller. For example, to obtain 4x reproduction ratio with ISO 100 film and the Micro-Nikkor 55mm f/2.8 lens in reverse position, use apertures from f/2.8 + 1/2 to f/11 + 1/2.



5. Set controller power/ mode switch to TTL to turn on the SB-21.

With the Nikon F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-301/N2000, or FG, first turn on camera's meter by lightly pressing the shutter release button to activate the viewfinder ready-light.



6. Confirm the viewfinder ready-light lights up, then fully depress shutter release button to take the picture.



Overexposure warning

If the overexposure warning lights up for a few seconds after the shot, use a smaller aperture (larger f-number).



Underexposure warning

If the ready-lights on the SB-21 controller and in the viewfinder blink for a few seconds after the shot, use a wider aperture (smaller f-number).

Exposure compensation

It is recommended that you take additional shots with the camera's exposure compensation dial set in the + or - direction for more or less exposure. Note that usable apertures vary with the amount of exposure compensation. See the table below, then reset the film speed setting on the aperture/reproduction ratio dial of the controller. With ISO 100 film, for example, and an exposure compensation dial setting of +2, read 25 on the table and reset the controller's film speed index to 25.

- Usable film speed for TTL flash photography with Nikon F3-series, FA, FE2 or FG cameras is between ISO 25-400; with Nikon F4-series, F-801/N8008, F-501/N2020 or F-301/N2000 cameras, it is between ISO 25-1000. Be sure the compensated film speed is within the range of each camera. If it is beyond the specified range, the ready-light blinks (except for F4-series or F-801/N8008).



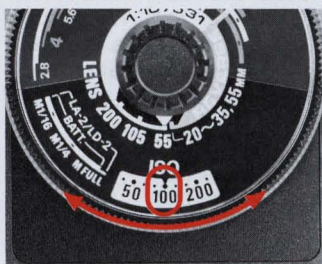
7. Set the power/ mode switch to OFF.

Film speed in use \ Exposure compensation value	Exposure compensation value				
	+2	+1	0	-1	-2
25	/	/	25	50	100
50	/	25	50	100	200
100	25	50	100	200	400
200	50	100	200	400	800*
400	100	200	400	800*	/
800*	200	400	800	/	/
1000*	250	500	1000	/	/

*For Nikon F4-series, F-801/N8008, F-501/N2020 and F-301/N2000 only.

/: Not possible

MANUAL FLASH SHOOTING



1. Turn the film speed ring on the controller's aperture/reproduction ratio dial until the film speed index is opposite the film speed in use.



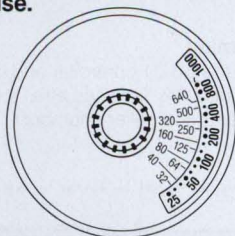
2. Turn lens selector knob to set lens index.

With lens in normal position:
Set the lens index on the controller to the focal length of the lens in use. With lenses not listed on the scale, use intermediate settings.

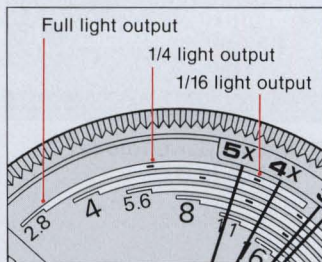


With lens in reverse position (55mm Micro-Nikkor or 20mm to 35mm Nikkor lens only):

Set lens index to the red "REVERSE" position.



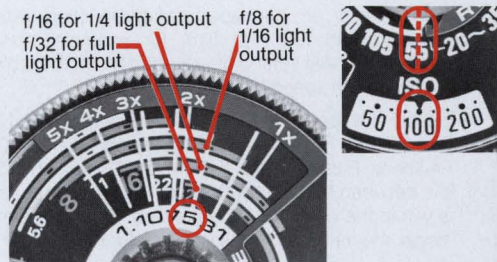
The two dots between the numbers on the film speed scale stand for intermediate settings.



3. Determine proper aperture for desired reproduction ratio.

Each of the aperture indicator lines are marked with light output indexes. The light output indexes at the left are for full light output, the center indexes for 1/4 light output, and the right ones for 1/16 light output.

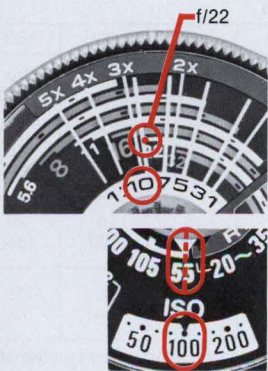
See page 48 for determining aperture according to the shooting distance.



Follow the white line (for lens in normal position) or red line (for lens in reverse position) from the reproduction ratio scale for the desired reproduction ratio until the white or red line intersects the light output index on the aperture indicator, then read the f/stop indicated.

For example, with ISO 100 film and the Micro-Nikkor 55mm f/2.8 lens in normal position, to obtain 1:5 reproduction ratio, use f/8 for 1/16 light output, f/16 for 1/4 light output or f/32 for full light output. For usable aperture with a reproduction ratio lower than 1:10, see page 40.

When the SB-21 is powered from the external power source LA-2 or LD-2:



For 1/4 and 1/16 light output, the usable aperture is the same as for the SB-21 powered by the internal battery. For full light output, use an aperture approx. 1/2 stop smaller. The usable aperture is that indicated by the narrow line-end of the aperture indicator line. Follow the white or red line until it intersects the narrow far-left end of the aperture indicator, then read the f/stop indicated.

For example, with ISO 100 film and Micro-Nikkor 55mm f/2.8 lens in normal position, use f/22 to obtain a 1:10 reproduction ratio.

With the Condenser Adapter SW-8 attached

Reset lens to an aperture 1/2 stop smaller.



4. Set the light output selector on the SB-21 to the desired position.



5. Set controller's power/mode switch to M to turn on the SB-21.

With the Nikon F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-401s/N4004s, F-301/N2000, FG, FG-20, or FE, first, turn on the camera meter by lightly pressing the shutter release button to activate the viewfinder ready-light.



6. Confirm the viewfinder ready-light lights up, then fully depress shutter release button to take the picture.

To ensure a correctly exposed picture, it is recommended that you take additional shots with the lens aperture opened or stopped down by one f/stop.



7. Set the power/mode switch to OFF.

GUIDE NUMBER

See the table below for guide numbers.

Guide number at flash-to-subject distance of 1 m (approx. 3.3 ft.)

Unit: m (ft.)

Amount of light output in M mode		ISO film speed							
		25	50	100	200	400	800	1000	1600
Full	For both flash modules with controller batteries	6.5 (21)	9 (30)	13 (43)	18 (60)	26 (85)	36 (120)	41 (135)	52 (171)
	For only one flash module or with external power source*	7.5 (25)	11 (35)	15 (49)	21 (69)	30 (98)	42 (139)	48 (156)	60 (197)
1/4		3.2 (10)	4.6 (15)	6.5 (21)	9 (30)	13 (43)	18 (60)	21 (68)	26 (85)
1/16		1.6 (5.3)	2.3 (7.5)	3.2 (10)	4.6 (15)	6.5 (21)	9 (30)	10 (34)	13 (43)

* For external power source with only one flash module, see the figure indicated in the column to the right (column for one step higher film speed)

In TTL auto flash operation, for usable apertures with a reproduction ratio lower than 1:10, use the following equation:

$$\text{Usable } f/\text{stops} = \frac{\text{guide number at full output}}{\text{flash-to-subject distance}} \sim \frac{\text{guide number at 1/16 output}}{\text{flash-to-subject distance}}$$

In manual flash operation, for usable aperture with a reproduction ratio lower than 1:10, use the following equation:

$$\text{Usable } f/\text{stop} = \frac{\text{guide number}}{\text{flash-to-subject distance}}$$

READY-LIGHT INDICATIONS

When the controller AS-12 or AS-14 is turned on, the controller ready-light comes on to indicate flash is ready to fire.

To activate the viewfinder ready-light function when using the Nikon F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-301/N2000, FG or FG-20, turn on the

camera meter by lightly pressing the shutter release button.

With alkaline-manganese or zinc-carbon batteries, if the ready-light takes more than 30 sec. to light up, replace batteries with a fresh set.

Ready-Light Warning Functions

To prevent errors listed below, the ready-lights inside the camera's viewfinder and on the controller blink, after the SB-21 is turned on.

With SB-21A

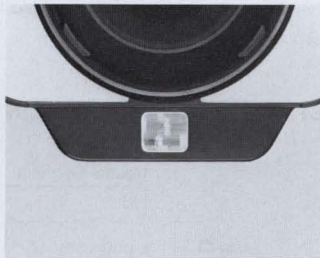
Blinking ready-light		Problem and remedy
Inside viewfinder	On AS-12	
○	○	<ol style="list-style-type: none"> 1) The AS-12's mounting foot is not securely locked. Firmly tighten lock ring. 2) The AS-12 is set at TTL with a camera other than a Nikon F3-series camera. Reset flash mode selector to M. 3) In TTL mode, the film speed setting on the camera is beyond the usable range. Use film within range of ISO 25 to 400. 4) The flash fired at full light output in TTL mode; lighting might be insufficient. (See page 37).
○	—	The shutter speed set on the FM2 or FE is faster than the flash sync speed. Reset to flash sync speed or slower.

With SB-21B

Blinking ready-light		Problem and remedy
Inside viewfinder	On AS-14	
○	—	<ol style="list-style-type: none"> 1) The AS-14 is set at TTL with a camera other than Nikon F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-301/N2000 or FG. Reset flash mode selector to M. 2) In TTL mode, film speed setting on the camera is beyond the usable range. Use film within the correct range for TTL auto flash photography—ISO 25 to 400 with the FA, FE2 or FG; ISO 25 to 1000 with the F4-series, F-801/N8008, F-501/N2020 or F-301/N2000. With the FA, the ready-light also blinks when the film speed setting on the camera is near ISO 12. 3) With the FA, FE2 or FG in TTL mode, the camera's shutter speed dial is set at a mechanical setting (M250, M90 or B). Reset shutter speed dial to another setting. For M250, M90 or B setting, reset the AS-14's mode selector to M. On the F-501/N2020 and F-301/N2020, B is not a mechanical shutter speed setting; you can use any setting on the F-501/N2020's exposure mode selector dial or F-301/N2000's shooting mode selector dial. 4) When the shutter speed set on the FM2 or FE is faster than the flash sync speed. Reset to flash sync speed or slower.
○	○	The flash fired at full light output in TTL mode; lighting might be insufficient. (See page 37).

Note: With the Nikon F-401/N4004, the TTL mode is inoperable regardless of ready-light indication.

USING THE FOCUS ILLUMINATOR



When ambient light is insufficient for focusing, push the focus illuminator button to provide illumination. The focus illuminator stays on approx. one minute unless you release the shutter; releasing shutter turns off the focusing illumination lamp.

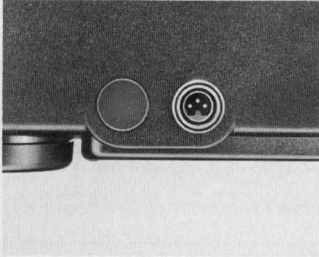
The illuminator houses two lamps. With four AA-type batteries in the controller, only one lamp lights up. To activate both lamps, use the external power source (see page 44).

TTL MULTIPLE FLASH PHOTOGRAPHY

As a master flash unit, use either SB-21A connected to an F3-series camera or SB-21B connected to an F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-301/N2000 or FG camera. The SB-21A can only be used as a master flash unit.

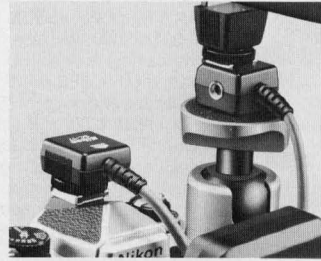
The following shows how to connect the SB-21 to other flash units.

For TTL auto flash operation, see pages 35 to 37.



With SB-21A

Connect the AS-12 and slave flash unit using the Nikon TTL Multi-Flash Sync Cord SC-18 or SC-19, via the TTL multiple flash terminals on the AS-12 and slave flash unit.



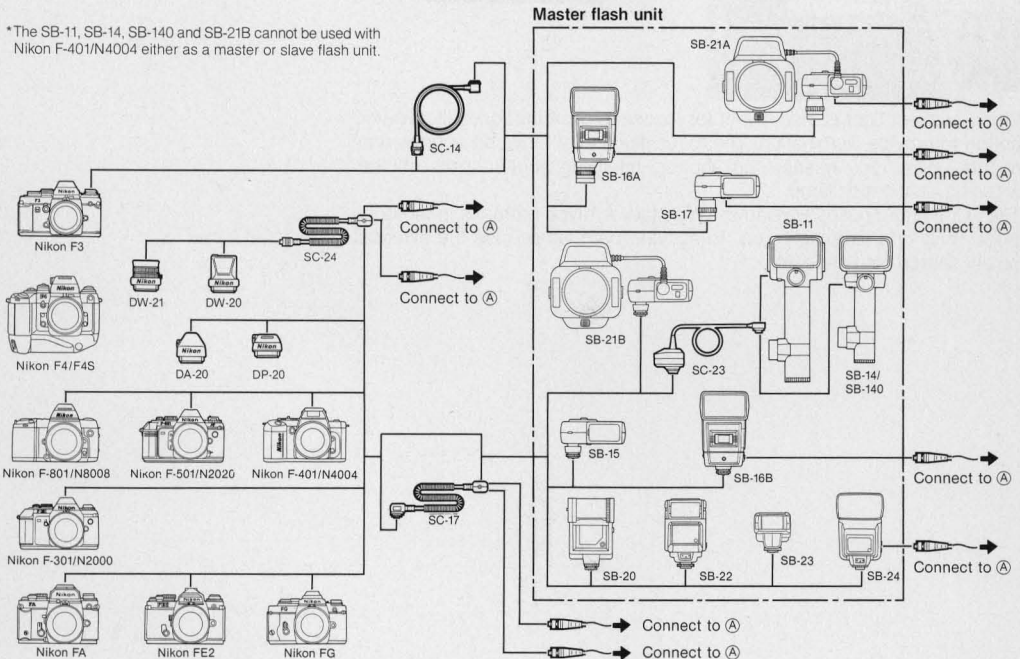
With the SB-21B

Requires TTL Remote Cord SC-17.

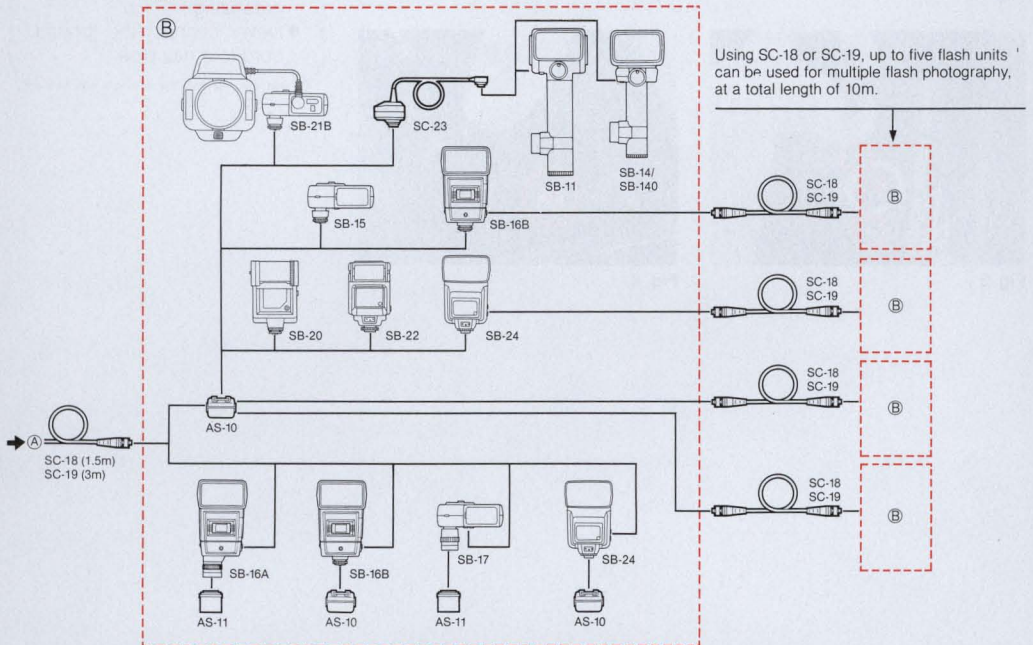
1. Connect AS-14 and the camera using the SC-17.
2. Connect the SC-17 and slave flash unit using the Nikon TTL Multi-Flash Sync Cord SC-18 or SC-19, via TTL multiple flash terminals on the SC-17 and slave flash unit.

SYSTEM CHART FOR TTL MULTIPLE FLASH OPERATION

*The SB-11, SB-14, SB-140 and SB-21B cannot be used with Nikon F-401/N4004 either as a master or slave flash unit.



Slave flash unit



EXTERNAL POWER SOURCE

For an external power source, use Nikon AC Unit LA-2 or DC Unit LD-2.

Both require Nikon power cord SC-21.

To protect the SB-21 from damage, observe the following.

AC Power Unit LA-2

1. Remove the batteries from inside the controller.
2. Using a coin, set the LA-2's voltage selector to the proper voltage setting. (Fig. 1)
3. Make sure the LA-2's power switch is turned off.
4. Slide the controller's power source terminal switch down to uncover the power source terminal, then insert the SC-21's female plug so the arrows on the plug are aligned with those on the terminal. (Fig. 2)
5. Insert the SC-21's male plug into the LA-2's power cord terminal so the white dot on the plug is aligned with the metallic dot near the terminal, then push until it clicks into place. (Fig. 3)
6. Plug the grounding cord (supplied with the LA-2) into the ground terminal at the back of the LA-2.

7. Plug the LA-2's AC cord into an electrical outlet.
8. Turn on the LA-2. The LA-2's pilot lamp comes on immediately. (Fig. 4)

After use

1. Turn off both controller and LA-2.
2. Unplug the AC cord from the electrical outlet.
3. Unplug the ground cord from the ground terminal.
4. Unplug the SC-21 plug from the LA-2's power cord terminal, grasping the plug by its metallic lock ring.
5. Unplug the SC-21's other plug from the SB-21.

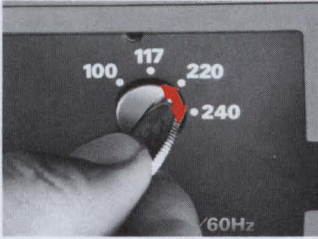


Fig. 1

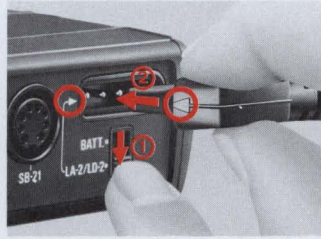


Fig. 2

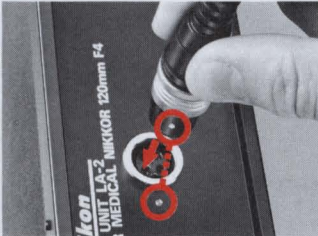


Fig. 3



Fig. 4

About grounding

- With electrical outlets having a ground terminal, securely connect the ground cord to the ground terminal.
- To connect the ground cord to a metallic water tap, wind the cord securely around the tap. (Plastic taps cannot be used for grounding.)
- *Never* connect the ground cord to a gas pipe.

DC Power Unit LD-2

Leave the four 1.5V AA-type batteries inside the controller; without them, the underexposure ready-light indication might not be as bright.

1. Open the LD-2's battery chamber lid and remove the battery holder. (Fig. 1)
2. Install eight 1.5V AA-type batteries in the LD-2's battery holder, then put the battery holder back into the battery chamber so the notch on the battery holder is aligned with the lid inside the battery chamber. (Fig. 2)
3. Make sure the LD-2's power switch is turned off.
4. Slide the controller's power source terminal switch down to uncover the power source terminal, then insert the SC-21's female plug so the arrows on the plug are aligned with those on the terminal. (Fig. 3)

5. Insert the SC-21's male plug into the LD-2's power cord terminal so the white dot on the plug is aligned with the metallic dot near the terminal. Then push the plug until it clicks into place. (Fig. 4)
6. Turn on the LD-2. (Fig. 5)

After use

1. Turn off both controller and LD-2.
2. Unplug the SC-21 plug from the LD-2's power cord terminal, grasping the plug by its metallic lock ring.
3. Unplug the SC-21's other plug from the SB-21.

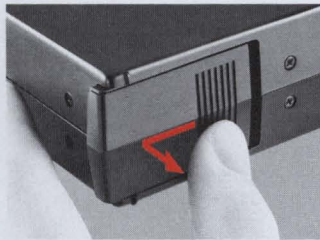


Fig.1

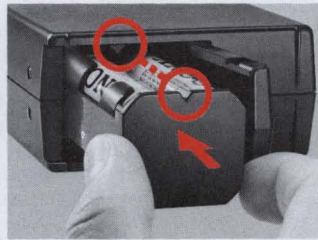


Fig.2

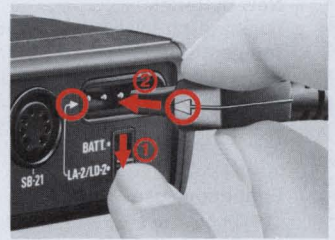


Fig.3



Fig.4



Fig.5

TIPS ON SPEEDLIGHT CARE

- To remove smudges, wipe with a soft dry or silicon-treated cloth. Never use thinner, benzine or alcohol—they might damage plastic parts.
- Never disassemble or repair the SB-21 and controller; in case of malfunction, take immediately to an authorized Nikon dealer or service center.
- Never touch the controller sync terminal with a metallic object.
- Keep the SB-21 and controller away from places where temperature is over 50°C (122°F), and do not store in damp places. Use within range of -10°C ~ +50°C (14°F ~ 122°F).
- Keep the SB-21 and controller away from salt water and rain.
- When not using the SB-21, remove controller batteries to avoid damage due to battery leakage. If leakage occurs, take controller to your nearest Nikon authorized service facility.
- When the SB-21 is not used for a long time, perform the following once a month:
 1. Install batteries in the controller, turn on the SB-21 and fire flash modules a few times.
 2. Wait until the ready-light comes on.
 3. Turn off the SB-21, and remove the batteries from the controller.

ABOUT BATTERIES

New batteries

Purchase the newest (freshest) batteries possible.

Temperature

Battery life ratings are based on operation at 20°C (68°F). At other temperatures, battery life is shortened. For low temperature operation, keep spare batteries and if possible, use NiCd batteries.

Continuous use

Continuous use drains batteries much more quickly than intermittent use.

Storage

Store batteries in a cool, dry place below 20°C (68°F).

Battery brand

Do not mix battery brands or model numbers, or new and old batteries.

Disposal

Do not dispose of batteries by burning, and never disassemble batteries.

NiCd batteries

Compared with regular batteries, NiCd batteries provide faster recycling and greater efficiency at low temperatures.

Before charging NiCd batteries, read instructions for batteries and charger.

ACCESSORIES

Macro Adapter Rings BR-2A and BR-5

The Macro Adapter Ring is necessary for mounting a lens in reverse position on a camera body or bellows attachment. For lenses with a 52mm front attachment size, use the BR-2A; for lenses with a 62mm front attachment size, use the BR-5.

Auto Adapter Ring BR-6

The BR-6 is necessary for attaching the SB-21 to a lens mounted in reverse position. Automatic diaphragm operation is possible if the BR-6 is used with the AR-7, AR-4 or AR-10 cable release.

SPECIFICATIONS

Electronic construction Automatic silicon-controlled rectifier and series circuitry

Guide number at flash-to-subject distance of 1m (approx. 3.3ft) 13 (at ISO 100 and meters) or 21 (at ISO 25 and feet), for both flash modules at full light output, when the SB-21 is powered by batteries inside the controller

Angle of coverage 65° horizontal and 85° vertical when both flash modules fire (measured 1m away)

Flash duration (approx.)

Light output	With both flash modules		With one flash module	
	With fresh controller batteries	With external power source	With fresh controller batteries	With external power source
Full	1/2000 sec.	1/1100 sec.	1/1600 sec.	1/870 sec.
1/4	1/6500 sec.	1/4700 sec.	1/5300 sec.	1/4500 sec.
1/16	1/25000 sec.	1/15000 sec.	1/22000 sec.	1/15000 sec.

Power source Four 1.5V AA-type alkaline-manganese, zinc-carbon or NiCd batteries; external power sources include optional AC Unit LA-2 and DC Unit LD-2 which holds eight 1.5V AA-type batteries

Number of flashes and recycling time at manual full light output

Battery type		Number of flashes (approx.)*	Recycling time (approx.)*
Inside controller	Alkaline-manganese	200	8 sec.
	Zinc-carbon	50	13 sec.
	NiCd**	60	7 sec.
Inside LD-2	Alkaline-manganese	300	4 sec.
	Zinc-carbon	90	8 sec.
	NiCd**	100	3 sec.

* Greater number of flashes and decreased recycling time are available at 1/4 or 1/16 light output, or during TTL auto flash operation.

** With NiCd batteries, number of flashes and recycling time depend on battery condition.

Flash exposure control Two flash modes are available, manual and TTL auto

TTL mode For TTL auto flash operation; with SB-21A, this is possible only with Nikon F3-series cameras; with SB-21B, this is possible only with the Nikon F4-series, F-801/N8008, FA, FE2, F-501/N2020, F-301/N2000 or FG cameras

Usable film speed range in TTL mode ISO 25 to 1000 with Nikon F4-series, F-801/N8008, F-501/N2020 and F-301/N2000; ISO 25 to 400 with Nikon F3-series, FA, FE2 and FG

M mode For manual flash operation; light output can be varied in three steps—full, 1/4 and 1/16

Dimensions (approx.)

SB-21 Main Unit 130 mm × 120 mm × 21 mm
 AS-12 Controller 100 mm × 90 mm × 41.5 mm (excluding mounting foot)
 AS-14 Controller 100 mm × 90 mm × 41.5 mm (excluding mounting foot)

Weight (approx.)

SB-21 Main Unit 145 g
 AS-12 Controller 280 g (without batteries)
 AS-14 Controller 250 g (without batteries)

Accessories provided

Condenser Adapter SW-8; 52 mm adapter ring; 62 mm adapter ring; soft cases SS-21 (for SB-21 Main Unit, SW-8 and 52 mm and 62 mm adapter rings), SS-17 (for controller)

- All performance data are for normal-temperature operation [20°C (68°F)]
- Specifications and designs are subject to change without notice.

DETERMINING APERTURE ACCORDING TO THE SHOOTING DISTANCE

マニュアル発光時の適正絞り値の算出は、露出計算ダイヤルを使用する方法の他に、後掲の撮影距離と絞り値との関係を表わしたグラフから求めることができます。それぞれのグラフの縦軸は撮影距離(被写体からフィルム面までの距離)、横軸は絞り値(有効F値ではなく絞りリングで設定すべき絞り値)を表わしています。

グラフから絞り値を読み取って撮影する際は、次の点にご注意ください。

①グラフは全てフィルム感度ISO100のときのものです。

ISO100以外の感度のフィルムを使用する場合は、感度に応じて読み取った絞り値を補正する必要があります。

絞り段数	絞りを絞る ←										絞りを開く →									
	4	2 $\frac{2}{3}$	3 $\frac{1}{3}$	3	2 $\frac{2}{3}$	2 $\frac{1}{2}$	2	1 $\frac{2}{3}$	1 $\frac{1}{3}$	1	$\frac{2}{3}$	$\frac{1}{2}$	0	$\frac{1}{3}$	$\frac{2}{3}$	1	1 $\frac{1}{3}$	1 $\frac{2}{3}$	2	
ISO	1600	1250	1000	800	640	500	400	320	250	200	160	125	100	80	64	50	40	32	25	

②発光距離が40mm以内のとき、集光アダプターSW-8を併用した場合はグラフから読み取った絞り値から、さらに約1/2段絞り込んでください。

③外部電源LA-2、またはLD-2を使用し、マニュアルフル発光を行う場合は、グラフから読み取った絞り値から、さらに約1/2段絞り込んでください。

④グラフは、マイクロニッコールのものを除いて、表記されているレンズの平均値で表わされています。従って、レンズによっては多少誤差が生じることもありますので、読み取った絞り値から±1段程度絞り値を変えて撮影しておくことをおすすめします。

⑤レンズ正向き時のグラフは等倍(1倍)以下の縮小撮影時のもの、レンズ逆向き時のグラフは等倍以上の拡大撮影時のものです。従って、レンズ正向きで拡大撮影を行った場合には、グラフから絞り値を読み取ることはできません。

グラフの読み方

例えばマイクロ55mm F2.8レンズを逆向きで使用、撮影距離が0.4mの場合(次ページ左上のグラフ2を参照)

ISO100のフィルムでは M1/16 = 約f/2.8、M1/4 = 約f/5.6、MFULL = 約f/11

ISO50のフィルムでは M1/16 = 使用不可、M1/4 = 約f/4、MFULL = 約f/8

ISO400のフィルムでは M1/16 = 約f/5.6、M1/4 = 約f/11、MFULL = 約f/22

となります。

The following graphs show the relationship between the subject-to-film-plane distance and aperture set on the lens at ISO 100.

Determine the proper aperture from the graph and set on the lens. For film speeds other than ISO 100, compensate the aperture. With one stop lower film speed, use one stop wider aperture (smaller f-number), and vice versa.

Note that the graphs for lenses in normal position only show apertures at reproduction ratios lower than 1:1. Apertures are not given for higher reproduction ratios with lenses in normal position.

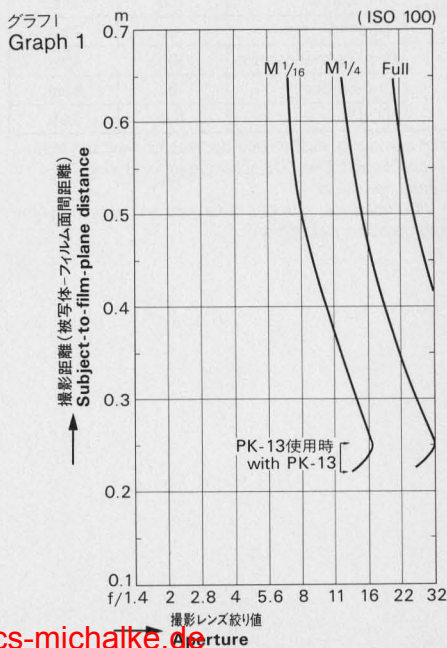
When using the Micro-Nikkor 55mm f/2.8 lens, for example, see graph 1.

With ISO 100 film, to shoot a subject 0.5m away from the film plane at 1/16 output, set the lens aperture to f/8. If your film is ISO 25, set the lens aperture to f/4.

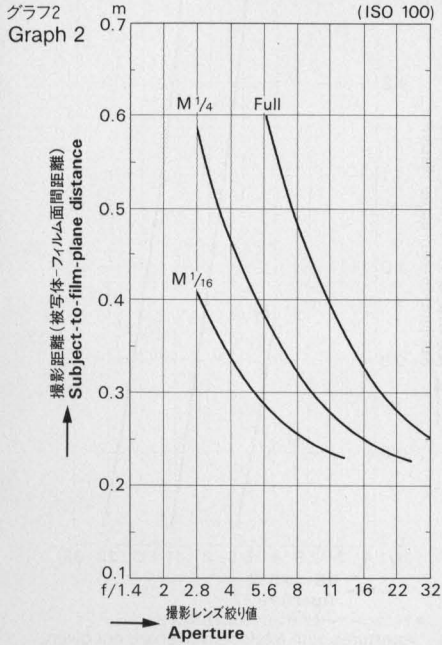
With a subject closer than 40mm away from the flash modules, attach the Condenser Adapter SW-8 and reset the lens aperture to an aperture approx. 1/2 stop smaller.

When the SB-21 is powered by external power source LA-2 or LD-2, use an aperture approx. 1/2 stop smaller than that determined using the graph.

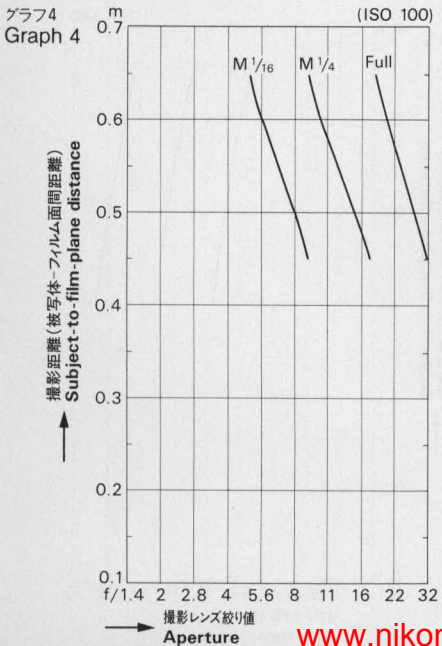
マイクロ55mm f/2.8・55mm f/3.5正向き使用時
For Micro-Nikkor 55mm f/2.8 and 55mm f/3.5
in normal position



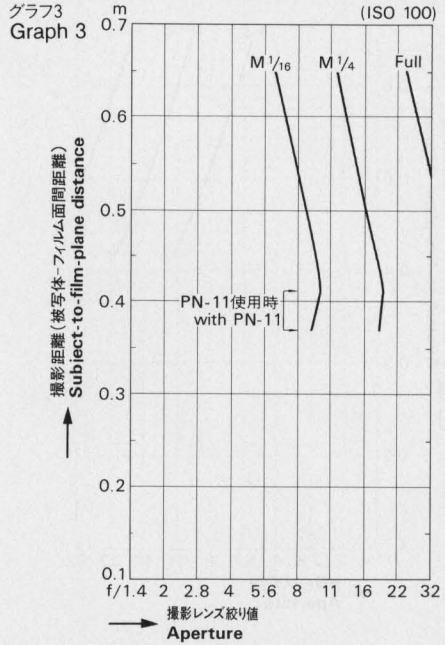
マイクロ55mm f/2.8・55mm f/3.5逆向き使用時
For Micro-Nikkor 55mm f/2.8 and 55mm f/3.5
in reverse position



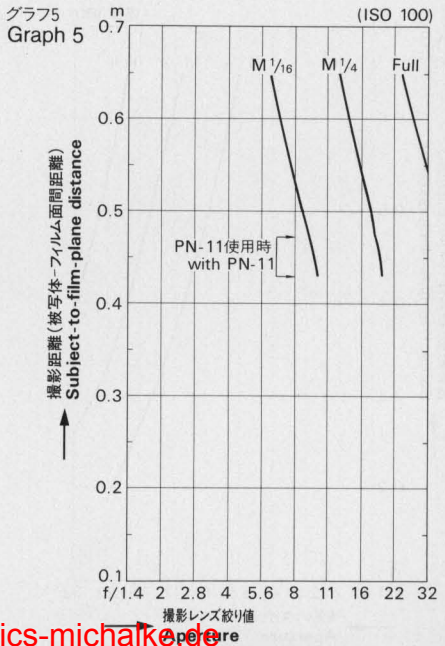
マイクロ105mm f/2.8逆向き使用時
For Micro-Nikkor 105mm f/2.8 in reverse position



マイクロ105mm/2.8正向き使用時
For Micro-Nikkor 105mm f/2.8 in normal position



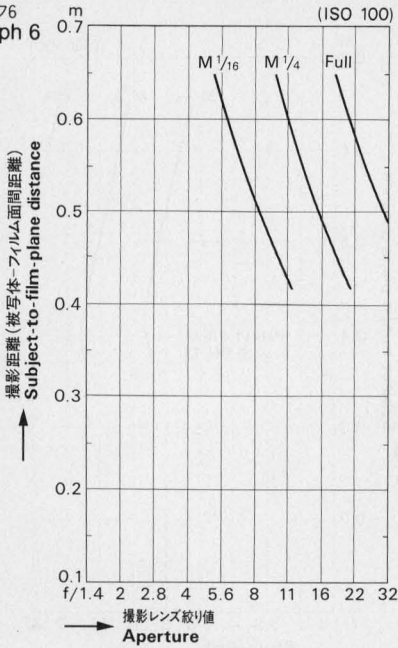
マイクロ105mm f/4正向き使用時
For Micro-Nikkor 105mm f/4 in normal position



マイクロ105mm f/4逆向き使用時

For Micro-Nikkor 105mm f/4 in reverse position

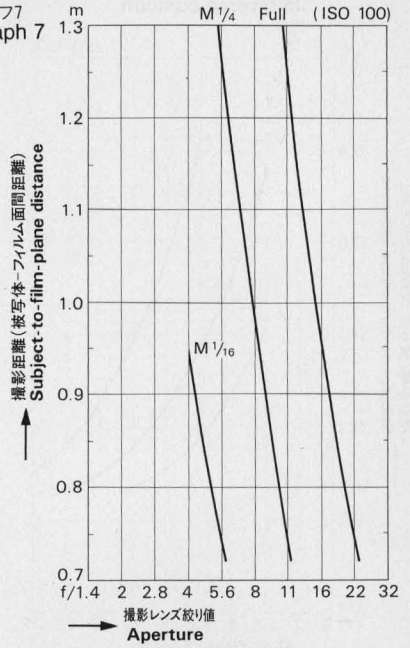
グラフ6
Graph 6



マイクロ200mm f/4正向き使用時*

For Micro-Nikkor 200mm f/4 in normal position*

グラフ7
Graph 7



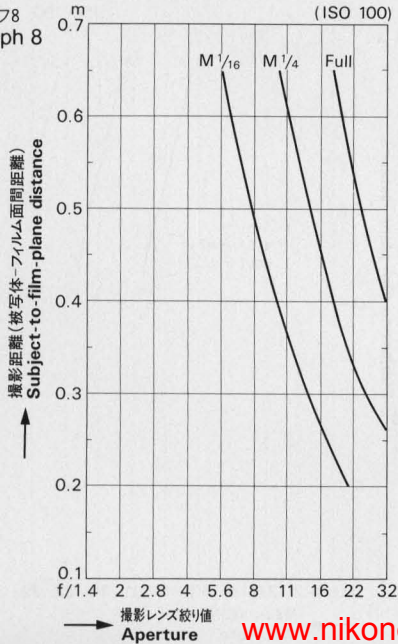
*テレコンバーター使用時の絞り値は読み取れません。

*Apertures with a teleconverter are not given.

20mm~85mmレンズ (マイクロレンズを除く) 正向き使用時

For 20mm to 85mm lenses (excluding Micro-Nikkor lenses) in normal position

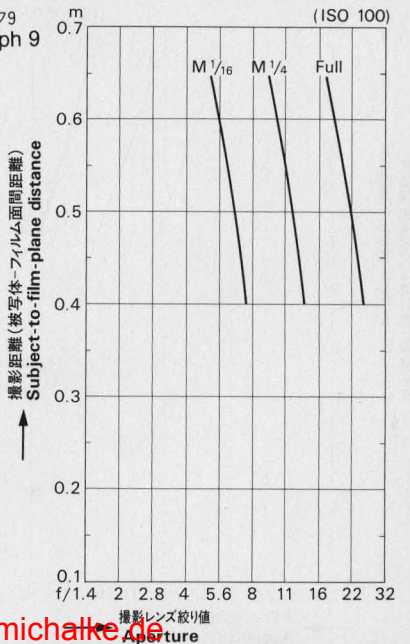
グラフ8
Graph 8



100mm~200mmレンズ (マイクロレンズを除く) 正向き使用時

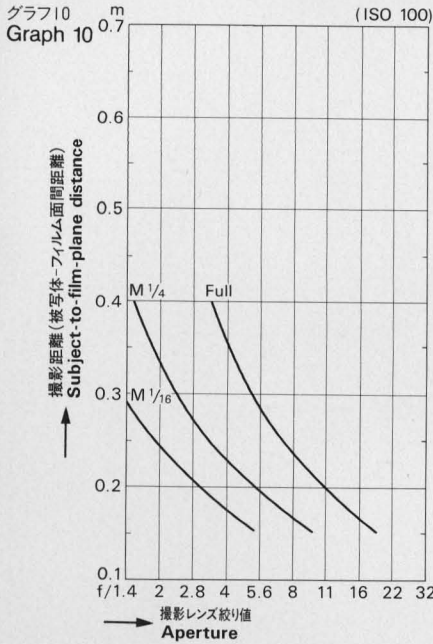
For 100mm to 200mm lenses (excluding Micro-Nikkor lenses) in normal position

グラフ9
Graph 9



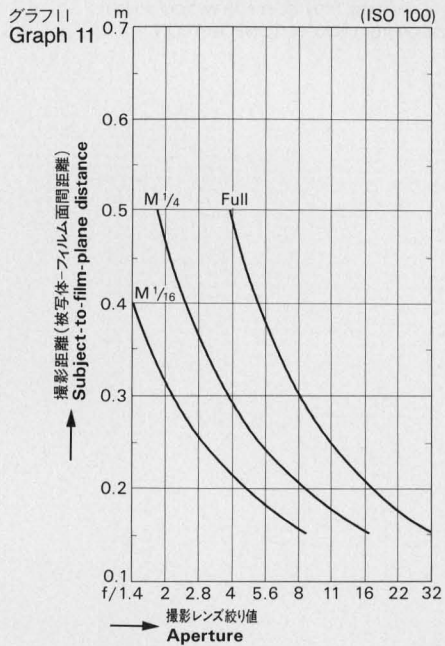
20mm～24mmレンズ 逆向き使用時

For 20mm to 24mm lenses in reverse position



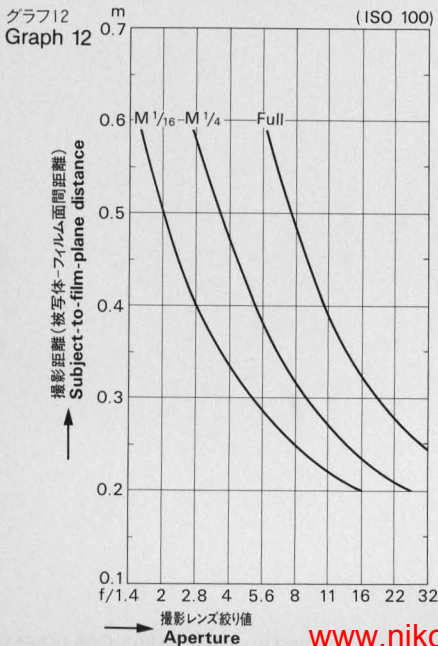
28mm～35mmレンズ 逆向き使用時

For 28mm to 35mm lenses in reverse position



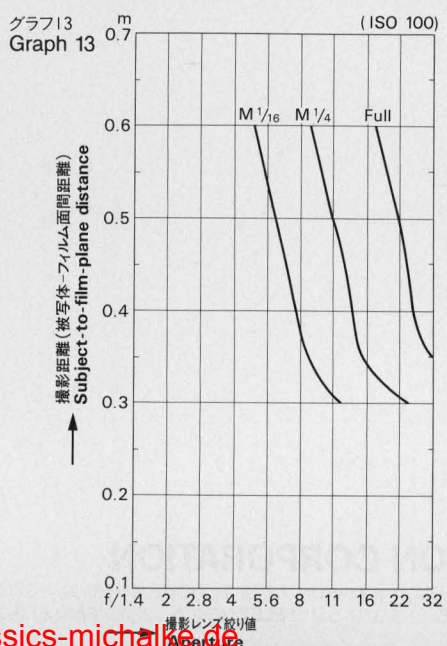
50mm～58mmレンズ(マイクロレンズを除く) 逆向き使用時

For 50mm to 58mm lenses (excluding Micro-Nikkor lenses) in reverse position



80mm～105mmレンズ(マイクロレンズを除く) 逆向き使用時

For 80mm to 105mm lenses (excluding Micro-Nikkor lenses) in reverse position



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Fixation du SB-21 à l'objectif en position normale

La bague adaptatrice UR-3 Nikon (en option) est nécessaire.

1. Fixez l'UR-3 à l'objectif.
2. Serrez fermement la vis de blocage sur l'UR-3.
3. Fixer le SB-21 au UR-3.
 - Avant de fixer ou de détacher le SB-21, veillez à ce que la bague de mise au point soit réglée sur infini (∞).
 - Ne fixez pas l'objectif sur le SB-21 via la bague d'adaptation de 62mm fournie avec le SB-21, car ceci risque d'endommager l'objectif ou le SB-21.

Réglage du repère de l'objectif sur le cadran des ouvertures/agrandissements du contrôleur

Pour les prises de vues auto flash TTL, référez-vous à la page 11; pour les prises de vues au flash manuel, référez-vous à la page 14. Bien que l'échelle n'indique pas 60mm, n'utilisez pas un réglage intermédiaire, et réglez plutôt le cadran sur 55.

Détermination de l'ouverture selon la distance de prise de vues (page 24)

Référez-vous aux graphiques suivants.

Remarquez qu'ils sont prévus pour un AF Micro-Nikkor 60mm f/2,8 avec un SB-21 alimenté par LA-2 ou LD-2. Pour une puissance de sortie complète lorsque le SB-21 est alimenté par piles de type AA à l'intérieur du contrôleur, utilisez une ouverture d'environ 1/2 stop plus large (une ouverture plus petits) que celle déterminée en utilisant le graphique. Pour la sortie M1/4 ou M1/16, utilisez l'ouverture indiquée dans les graphiques.

Para usar el objetivo AF Micro-Nikkor de 60mm f/2,8 con el SB-21

Para mayores instrucciones refiérase al manual de instrucciones del SB-21.

Acoplado del SB-21 al objetivo en posición normal

Se requiere del Anillo adaptador UR-3 (opcional)

1. Acople el UR-3 al objetivo.
2. Apriete firmemente el tornillo de bloqueo en el UR-3.
3. Acople el SB-21 al UR-3.
 - Antes de acoplar/desacoplar el SB-21, asegúrese que el anillo de enfoque del objetivo esté ajustado a infinito (∞).
 - No acople el objetivo al SB-21 a través del Anillo adaptador de 62mm.

Ajuste el índice de objetivo en el dial de relación de abertura/reproducción del controlador

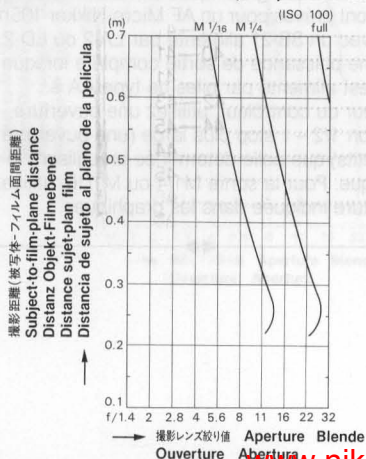
Para la toma de flash automático TTL, refiérase a la página 11; para la toma de flash manual, refiérase a la página 14. Aunque la escala no indica 60mm, no use un ajuste intermedio, en lugar de eso, ajuste el dial a 55.

Determinación de la abertura según la distancia de disparo (página 24)

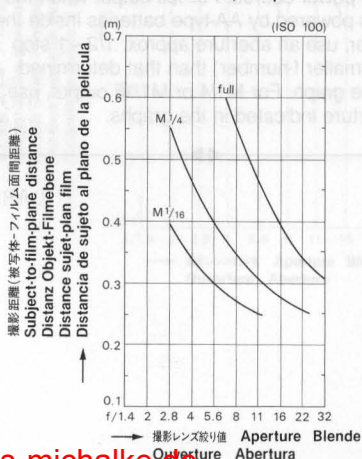
Véanse los siguientes gráficos a continuación.

Nótese que éstos corresponden al AF Micro-Nikkor de 60mm f/2,8 con SB-21 alimentado mediante una fuente de alimentación externa LA-2 o LD-2. Para salida plena, cuando el SB-21 se usa con pilas de tipo AA en el controlador, use una abertura de aproximadamente 1/2 número más pequeño (número f-menor) que el determinado usando el gráfico. Para una salida de M1/4 o M1/16, use la apertura indicada en los gráficos.

AF マイクロ60mm F2.8正向き使用時
For AF Micro-Nikkor 60mm f/2.8 in normal position
Für AF Micro-Nikkor 60mm f/2.8 in Normalstellung
Pour AF Micro-Nikkor de 60mm f/2,8 in position normale
Para AF Micro-Nikkor de 60mm f/2,8 en posición normal



AF マイクロ60mm F2.8逆向き使用時
For AF Micro-Nikkor 60mm f/2.8 in reverse position
Für AF Micro-Nikkor 60mm f/2.8 in Retrostellung
Pour AF Micro-Nikkor de 60mm f/2,8 in position inversée
Para AF Micro-Nikkor de 60mm f/2,8 en posición inversa



マクロスピードライトSB-21をAFマイクロニッコール105mmF2.8に取付けてご使用になるには

下記以外の使用につきましては本文をご参照ください。

取付け方

AFマイクロニッコール105mmF2.8のアタッチメントサイズは52mmですが、SB-21の発光部をレンズに取付ける際にはSB-21付属の62mmアダプターリングをご使用ください。

グラフによる適正絞り値の求め方(本文P.48)

AFマイクロニッコール105mmF2.8のグラフは右下にあります。これは、SB-21に外部電源を使用して撮影する場合のもので、SB-21コントローラー内の電源をご使用の際は次の点にご注意ください。

- マニュアルフル発光を行う場合は、グラフから読み取った絞り値をさらに約1/2~1段開けてください。
- マニュアルM1/4またはM/16発光の場合は、グラフから読み取った絞り値をそのままご使用ください。

To use the AF Micro-Nikkor 105mm f/2.8 lens with the SB-21

For further instructions, see the SB-21 instruction manual.

Attaching the SB-21 to the lens in normal position

Although the attachment size of the AF Micro-Nikkor 105mm f/2.8 is 52mm, use the 62mm adapter ring instead of the 52mm adapter ring.

Determining aperture according to shooting distance (page 48)

See graphs at right.

Note that they are for an AF Micro-Nikkor 105mm f/2.8 with an SB-21 powered by the LA-2 or LD-2 external power source. For full output when the SB-21 is powered by AA-type batteries inside the controller, use an aperture approx. 1/2 ~ 1 stop wider (smaller f-number) than that determined using the graph. For M1/4 or M1/16 output, use the aperture indicated in the graphs.

Die Verwendung des Objektivs AF Micro-Nikkor 105mm f/2,8 mit dem SB-21

Wenden Sie sich bezüglich weiterer Hinweise an die Betriebsanleitung des SB-21.

Wie Sie das SB-21 am normal angesetzten Objektiv befestigen

Obwohl der Gewindedurchmesser des AF Micro-Nikkor 105mm f/2,8 zwar 52mm beträgt, verwenden Sie einen 62-mm-Adapterring anstelle eine 52-mm-Adapterrings.

Wie Sie die Blende je nach Aufnahmeabstand bestimmen (Seite 24)

Beachten Sie bitte die nachfolgenden Diagramme. Sie gelten für ein AF Micro-Nikkor 105mm f/2,8 in Verbindung mit einem SB-21 und den externen Stromquellen LA-2 oder LD-2. Stellen Sie die Blende um ca. einen halben bis ganzen Wert größer ein (kleinere Blendenzahl) als in den Diagrammen angegeben, wenn Sie das SB-21 bei voller Leistungsabgabe durch die vier Mignon-Batterien im Steuerteil mit Strom versorgen. Wenn Sie 1/4 oder 1/16 Blitzleistung eingestellt haben, gelten die Werte in den Diagrammen.

Usage de l'objectif AF Micro-Nikkor 105mm f/2,8 avec le SB-21

Pour plus de détails, référez-vous au manuel d'utilisation.

Fixation du SB-21 à l'objectif en position normale

Bien que la taille de montage du AF Micro-Nikkor 105mm f/2,8 soit de 52mm, utiliser la bague d'adaptation 62mm au lieu de la bague d'adaptation 52mm.

Détermination de l'ouverture selon la distance de prise de vues (page 24)

Référez-vous aux graphiques suivants. Remarquez qu'ils sont prévus pour un AF Micro-Nikkor 105mm f/2,8 avec un SB-21 alimenté par LA-2 ou LD-2. Pour une puissance de sortie complète lorsque le SB-21 est alimenté par piles de type AA à l'intérieur du contrôleur, utilisez une ouverture d'environ 1/2 ~ 1 stop plus large (une ouverture plus petits) que celle déterminée en utilisant le graphique. Pour la sortie M1/4 ou M1/16, utilisez l'ouverture indiquée dans les graphiques.

Para usar el objetivo AF Micro-Nikkor de 105mm f/2,8 con el SB-21

Para mayores instrucciones refiérase al manual de instrucciones del SB-21.

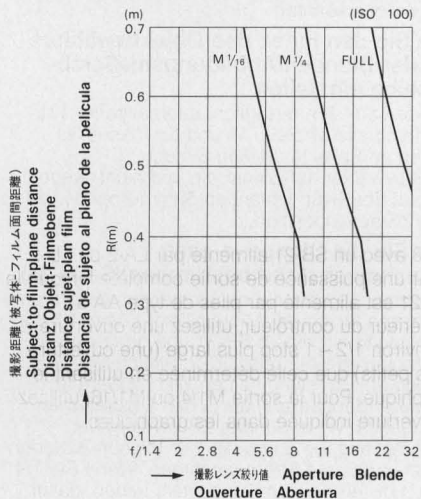
Acoplado del SB-21 al objetivo en posición normal

Aunque el tamaño de montaje del AF Micro-Nikkor 105mm f/2,8 es de 52mm, use el anillo adaptador de 62mm en lugar del anillo adaptador de 52mm.

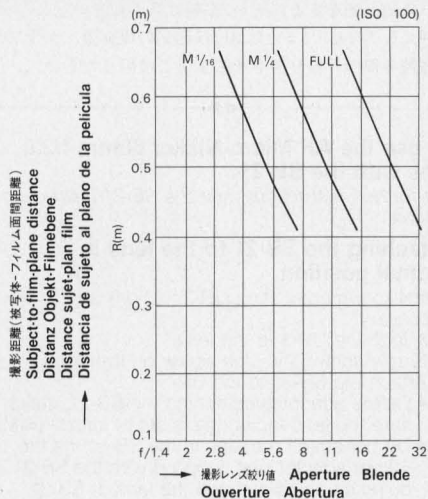
Determinación de la abertura según la distancia de disparo (página 24)

Véanse los siguientes gráficos a continuación. Nótese que éstos corresponden al AF Micro-Nikkor de 105mm f/2,8 con SB-21 alimentado mediante una fuente de alimentación externa LA-2 o LD-2. Para salida plena, cuando el SB-21 se usa con pilas de tipo AA en el controlador, use una abertura de aproximadamente 1/2 ~ 1 número más pequeño (número f-menor) que el determinado usando el gráfico. Para una salida de M1/4 o M1/16, use la abertura indicada en los gráficos.

AF マイクロ105mmF2.8正向き使用時
For AF Micro-Nikkor 105mm f/2.8 in normal position
Für AF Micro-Nikkor 105mm f/2,8 in Normalstellung
Pour AF Micro-Nikkor de 105mm f/2,8 en position normale
Para AF Micro-Nikkor de 105mm f/2,8 en posición normal



AF マイクロ105mmF2.8逆向き使用時
For AF Micro-Nikkor 105mm f/2.8 in reverse position
Für AF Micro-Nikkor 105mm f/2,8 in Retrostellung
Pour AF Micro-Nikkor de 105mm f/2,8 en position inversée
Para AF Micro-Nikkor de 105mm f/2,8 en posición inversa



マクロスピードライトSB-21をAFマイクロニッコール60mmF2.8に取付けてご使用になるには

下記以外の使用につきましては本文をご参照ください。

取付け方

専用アクセサリ- SB-21用アダプターUR-3(別売)が必要です。レンズにUR-3をかぶせクランプでしっかりと固定し、その上にSB-21の発光部を取付けてください。

●SB-21発光部の取付け・取り外しの際には、安全のためレンズの距離リングを無限(∞)の位置にセットして行ってください。

●SB-21付属の62mm用アダプターでも取付けは可能ですが、レンズへの負荷などにより故障の原因となる場合がありますので専用アダプターUR-3をご使用ください。

露出計算ダイヤルのセット(本文P.7の5)

AFマイクロニッコール60mmF2.8をご使用の場合は、レンズ目盛の55をレンズ指標にセットします。

グラフによる適正絞り値の求め方(本文P.48)

AFマイクロニッコール60mmF2.8のグラフは右下にあります。これは、SB-21に外部電源を使用して撮影する場合のもので、SB-21コントローラー内の電源をご使用の際は次の点にご注意ください。

●マニュアルフル発光を行う場合は、グラフから読み取った絞り値をさらに約1/2段開けてください。

●マニュアルM1/4またはM1/16発光の場合は、グラフから読み取った絞り値をそのままご使用ください。

To use the AF Micro-Nikkor 60mm f/2.8 lens with the SB-21

For further instructions, see the SB-21 instruction manual.

Attaching the SB-21 to the lens in normal position

The Nikon Adapter Ring UR-3 (option) is necessary.

1. Attach the UR-3 to the lens.
2. Firmly tighten the lock screw on the UR-3.
3. Attach the SB-21 to the UR-3.
 - Before attaching/detaching the SB-21, make sure the lens focus ring is set at infinity (∞).
 - Do not attach the lens to the SB-21 via the 62mm adapter ring supplied with the SB-21; doing so could damage the lens or SB-21.

Setting the lens index on the controller's aperture/reproduction ratio dial

For TTL auto flash shooting, see page 35; for manual flash shooting, see page 38. Although the scale does not indicate 60mm, do not use an intermediate setting; instead, set the dial to 55.

Determining aperture according to shooting distance (page 48)

See graphs at right.

Note that they are for an AF Micro-Nikkor 60mm f/2.8 with an SB-21 powered by the LA-2 or LD-2 external power source. For full output when the SB-21 is powered by AA-type batteries inside the controller, use an aperture approx. 1/2 stop wider (smaller f-number) than that determined using the graph. For M1/4 or M1/16 output, use the aperture indicated in the graphs.

Die Verwendung des Objektivs AF Micro-Nikkor 60mm f/2,8 mit dem SB-21

Wenden Sie sich bezüglich weiterer Hinweise an die Betriebsanleitung des SB-21.

Wie Sie das SB-21 am normal angesetzten Objektiv befestigen

Dazu ist der (zusätzlich erhältliche) Nikon Adapterring UR-3 erforderlich

1. Befestigen Sie den UR-3 am Objektiv.
2. Ziehen Sie die Verriegelungs-Schraube des UR-3 fest an.
3. Bringen Sie das SB-21 am UR-3 an.
 - Vergewissern Sie sich, daß der Entfernungseinstellung des Objektivs auf unendlich gestellt ist, bevor Sie das SB-21 an- oder absetzen.
 - Befestigen Sie das SB-21 nicht mit dem mitgelieferten 62mm-Adapterring am Objektiv, da sonst beide Teile beschädigt werden könnten.

Wie Sie den Index des Objektivwählers auf der Blenden/Abbildungsmaßstab-Scheibe einstellen.

Wenden Sie sich bezüglich automatischer TTL-Blitzfotografie an Seite 11 und für manuelles Blitzen an Seite 14. Stellen Sie den Objektivwähler auf 55mm ein und nicht, wegen der auf der Skala fehlenden 60mm-Angabe, auf eine Zwischenposition.

Wie Sie die Blende je nach Aufnahmeabstand bestimmen (Seite 24)

Beachten Sie bitte die nachfolgenden Diagramme. Sie gelten für ein AF Micro-Nikkor 60mm f/2,8 in Verbindung mit einem SB-21 und den externen Stromquellen LA-2 oder LD-2. Stellen Sie die Blende um ca. einen halben Wert größer ein (kleinere Blendenzahl) als in den Diagrammen angegeben, wenn Sie das SB-21 bei voller Leistungsabgabe durch die vier Mignon-Batterien im Steuerteil mit Strom versorgen. Wenn Sie 1/4 oder 1/16 Blitzleistung eingestellt haben, gelten die Werte in den Diagrammen.

Usage de l'objectif AF Micro-Nikkor 60mm f/2,8 avec le SB-21

Pour plus de détails, référez-vous au manuel d'utilisation