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AF 200T

AUTOMATIC ELECTRONIC FLASH UNIT



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The AF200T is a cordless, hotshoe-mounting flash unit that provides the following modes. TTL Auto, Two-Level Auto and Four-Level Manual modes. With a Pentax camera which has a TTL flash metering cell inside its body, you can use the AF200T as a TTL Auto Flash unit.

In TTL Auto Flash, the metering cell measures the amount of ambient and electronic flash light reaching the film plane. The cell automatically terminates flash output when the proper exposure is achieved. The TTL Auto mode permits you to use any f-stop within the flash unit's operating range, moreover, there is no need for compensation when using filters or close-up accessories.

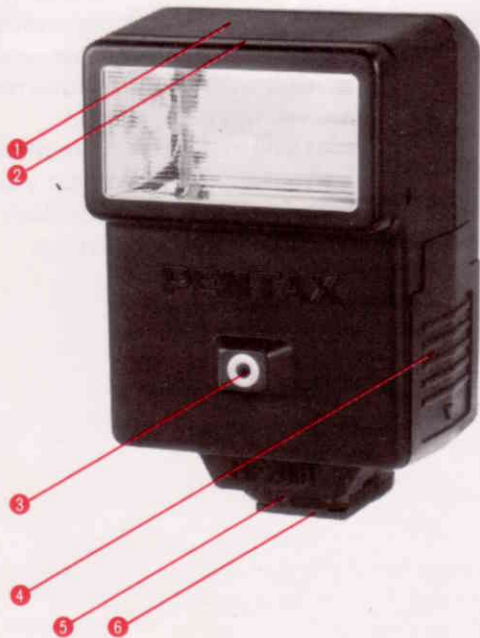
The AF200T features an electronic sensor on the unit that measures light from the subject and controls flash output for correct exposure in Two-Level Auto mode. You can use this mode with late-model Pentax cameras with its dedicated features.

In Four-Level manual mode, you can select four light intensity levels, FULL, 1/2, 1/4, and 1/8. You can control the light intensity depending on the situation. At 1/8 light intensity level, you can use the AF200T with motor drive or automatic film winder up to 2 frames per second.

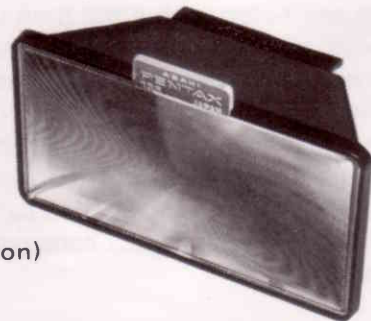
We recommend that you read the entire manual very carefully as soon as possible, so that you will understand the full capabilities of your flash unit and insure years of trouble-free operation.

DESCRIPTION OF PARTS

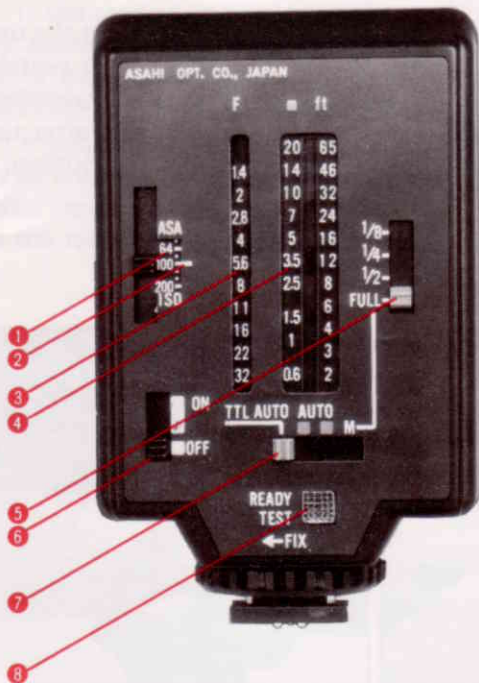
- ① Flash head
- ② Slots for Wide-Angle/Telephoto Adaptors
- ③ Auto flash sensor
- ④ Battery compartment cover
- ⑤ Thumb screw
- ⑥ Hotshoe bracket



Wide-Angle Adaptor (Option)



Telephoto Adaptor (Option)



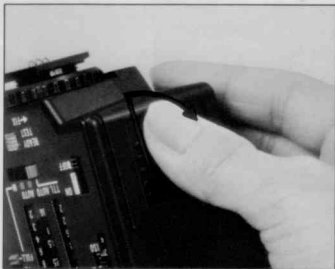
Flash Control Panel

- 1 ASA/ISO window
- 2 ASA/ISO film speed index mark
- 3 Aperture scale
- 4 Distance scale
- 5 Light intensity selector
- 6 Power switch/Auto exposure check sound switch
- 7 Flash mode selector lever
- 8 Flash ready lamp/Test button

1. Slide the battery compartment cover down with your thumb to the direction of ▲ mark and open the cover all the way.
2. Insert four AA size batteries into the battery compartment in accordance with the plus/minus (+ -) marking and close the cover.

Test flash:

Before mounting, it is advisable to test the unit against battery failure. Turn the power switch to ON; you will hear a faint whine that indicates the unit is charging. In a few seconds, after the flash ready lamp lights, press the test button.



NOTE: If the ready lamp fails to light within 30 seconds, batteries may be inserted improperly (if new) or worn out (if old).

- At this time, if you select **TWO-LEVEL AUTO FLASH** mode and set the power switch at **♪** mark, you will hear the PCV sound which is for automatic exposure check.
- After the test flash is over, turn off the power switch.

Batteries

Use four AA size batteries mentioned below.

Manganese batteries

Alkaline batteries

Ni-Cd rechargeable batteries (You need a battery recharger.)

BATTERY PRECAUTIONS

- Remove batteries when not using the flash unit for long periods of time. Batteries tend to leak if left too long in the unit and may cause serious damage.
- Batteries are very sensitive to cold and performance tends to deteriorate at temperatures near freezing. Performance is restored to normal as soon as batteries are subject to room temperatures. Keep a set of warm spare batteries in your pocket when shooting in freezing weather to substitute when the others become cold.
- Battery performance tends to differ depending upon brand and type. Best results are obtained when high-performance alkaline batteries are used. Rechargeable Ni-Cd (nickel-cadmium) batteries offer the advantage of shorter initial recycling time and rechargeability, but give less number of flashes per charge.
- Replace batteries at the same time. Do not mix battery brands and types, or old batteries with new batteries.

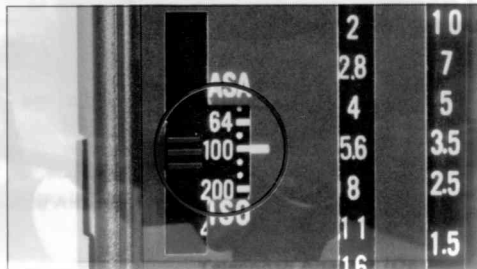
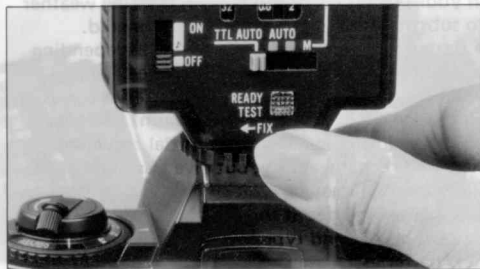
MOUNTING/INDEXING THE ASA/ISO FILM SPEED**Mounting**

Slide the unit's hotshoe bracket into the camera's hotshoe.

When the bracket is inserted all the way into the hotshoe, tighten the thumb screw above the bracket by turning it in the direction of the arrow (FIX) to secure the bracket.

Indexing the ASA/ISO film speed

Index the ASA/ISO film speed of the film loaded in your camera via the flash unit's control panel. This is done by the ASA/ISO film speed index lever until the ASA/ISO number aligns with the white line in the center of the ASA/ISO film speed scale.



PRECAUTIONS

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- As flash unit utilizes high voltage circuitry, never disassemble. If repair is required obtain proper service.
- Do not expose the unit to high temperatures and humidity for long periods of time. To ensure maximum performance, always store in cool, dry well-ventilated place. Also, test-fire the unit every month or two when storing for long periods of time to maintain the capacitor at peak performance levels.

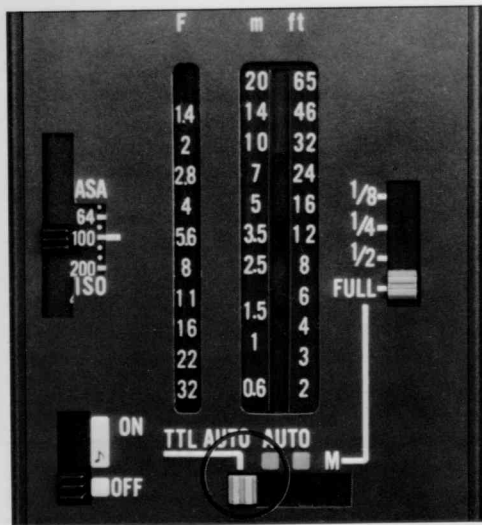


The method of flash synchronization and the operational features of the AF200T vary depending upon the camera you are using. Both Two-Level Auto and Manual flash operation are featured with all cameras that offer hotshoe synchronization, and TTL Auto flash is available with the Pentax cameras that have TTL flash sensor built-in. With optional accessories such as the Hotshoe Grip and the Synchronization cord 4P, you can use the AF200T as a grip type flash, away from the camera. In addition, with certain other Pentax cameras, automatic flash synchronization and viewfinder flash ready indication are offered along with other dedicated flash features (as indicated in the chart). For further information about features, be sure to refer to your camera instruction manual.

	LX	645
Flash Mode	TTL Auto, Two-level Auto, Four-level Manual	TTL Auto, Two-level Auto, Four-level Manual
Automatic Sync	At 1/50 sec. with shutter speed dial set at "Auto-matic, on charging	At 1/60 sec. with photo mode set to Programmed AE, Aperture-priority AE or Shutter-priority AE
Manual Sync	At "X" (1/75 sec.) setting of shutter speed dial	By setting "60" (1/60 sec.) in LCD Window
Flash Ready Indication	1) LED lamp inside viewfinder 2) Flash ready lamp on flash unit	1) LED sign inside viewfinder 2) Flash ready lamp on flash unit
Auto Flash Check	1) Flickering LED lamp inside viewfinder 2) Auto check PCV sound from flash unit	1) Flickering LED sign inside viewfinder 2) Auto check PCV sound from flash unit

Super A, Super Program	Program A, Program Plus	ME-F, ME Super	MG, MV, MV-1
TTL Auto, Two-level Auto, Four-level Manual	Two-level Auto, Four-level Manual	Two-level Auto, Four-level Manual	Two-level Auto, Four-level Manual
At 1/125 sec. with shutter mode dial set at "Auto", on charging	At 1/100 sec. with shutter dial set at AUTO, on charging	At 1/125 sec. with shutter mode dial set at "Auto" and "M" (Manual), on charging	At 1/100 sec. with shutter mode dial set at "Auto", on charging
At "125 X" setting of shutter mode dial	At "100 " setting of shutter dial	At "125 X" setting of shutter mode dial	At "100 X" setting of shutter mode dial
1) LCD sign inside viewfinder 2) Flash ready lamp on flash unit	1) LCD sign inside viewfinder 2) Flash ready lamp on flash unit	1) LED lamp inside viewfinder 2) Flash ready lamp on flash unit	1) LED Lamp inside viewfinder 2) Flash ready lamp on flash unit
1) Flickering LCD sign inside viewfinder 2) Auto check PCV sound from flash unit	1) Flickering LCD sign inside viewfinder 2) Auto check lamp on flash unit	Auto check PCV sound from flash unit	Auto check PCV sound from flash unit

TTL AUTO FLASH OPERATION



Using the AF200T on the 645, LX, Super A or Super Program enables you to take flash photographs in the TTL Auto Flash mode. The LX couples with the flash within the camera's ASA/ISO range of 6 - 800, while the 645, Super A or Super Program, 25 - 800. In this mode the flash is directly controlled by the amount of light coming in through the taking lens and reflected from the film plane. This automatic flash mode permits you to use any lens aperture within the flash unit's operating range and lets you eliminate all complicated calculations in using filters and close-up accessories.

- When used with the 645, Super A or Super Program with the aperture ring of the A-series lens set at any position other than A, you can operate this flash within the TTL Auto Flash range described on page 13; when the aperture ring is set at A, the aperture is automatically set at the programmed f-stop on completion of the charging.

1. Set the flash mode selector lever to "TTL AUTO".

2. Select any desired f-stop. For the TTL flash coupling range for each f-stop, refer to the chart on the following page. When you look for the TTL coupling range on the flash unit's flash control panel, the maximum distance will be found right next to the f-number you chose and the minimum distance will be $1/3$ of the maximum distance. For example, choosing f/5.6 with ASA/ISO 100 film as shown in the chart, you get the maximum distance of 3.5m or 12 ft. and the minimum distance of $(3.5\text{m} \div 3 = 1.2\text{m})$ or $(12\text{ ft.} \div 3 = 4\text{ ft.})$ from the control panel.

3. Turn on the power switch. You are ready to take a picture when the flash ready lamp lights up.

4. The PCV will sound to confirm the proper exposure if you align the power switch with \curvearrowright mark. When you do not need the PCV sound, set the power switch to ON position.

5. After shooting is over, turn off the power switch.

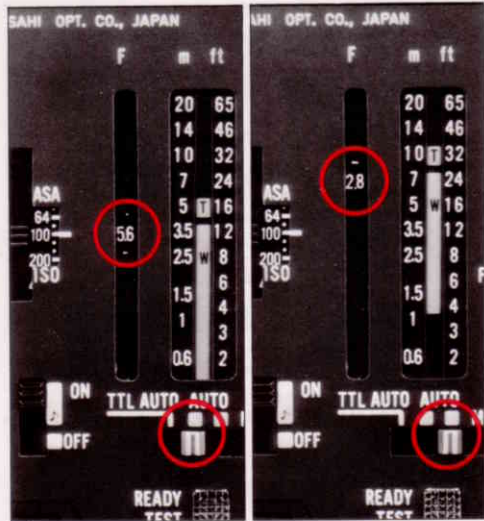
- Set the light intensity selector to FULL.

- When used with the 645, Super A or Super Program with the aperture ring of the A-series lens set at A, the aperture automatically switches depending on the ASA/ISO film speed, and the TTL Auto Flash range is fixed to 1.7 - 5 m.

TTL AUTO FLASH RANGE CHART (ASA/ISO 100)

Distance	0.6	1	1.5	2.5	3.5	5	7	10	14	20(m)
f/1.2										
f/1.4										
f/2										
f/2.8										
f/4*										
f/5.6										
f/8										
f/11										
f/16										
f/22										
Distance	2	3	5	8	12	16	24	32	46	66(ft)

- When shooting the subject 2.5 m away, for example, any f-stop between f/2.8 and f/8 can be used, and the depth of field can be varied.
 - With an ASA/ISO 400 film, the distances in the above chart are doubled. For example, at f/5.6 the range is about 2.4 – 7 m (8 – 23ft.)
- If you use an ASA/ISO 25 film, the above distances are halved.
- * When used with the 645, Super A or Super Program with the aperture ring of the A-series lens set at A, the aperture is automatically set to f/4.



1. Set the flash mode selector lever either to the RED or GREEN auto setting in accordance with subject distance as indicated in the following chart. (Note: "T" and "W" indices apply only when the accessory telephoto and wide-angle adaptors are used.)

2. After making sure that you have properly indexed the ASA/ISO film speed (see page 6), set the aperture indicated at the aperture scale, depending upon which mode you have selected.

3. Turn the power switch to ON and compose the picture.

Shoot anytime after the flash ready lamp lights.

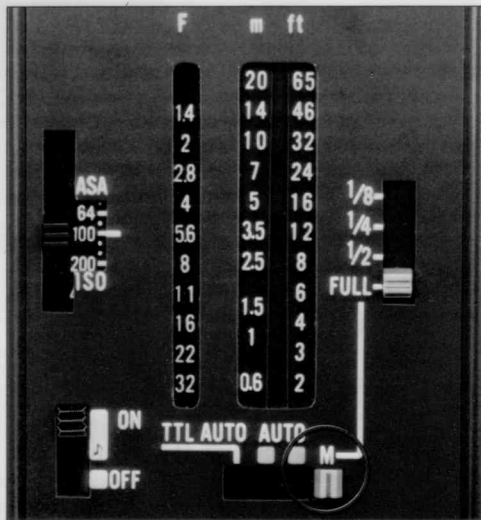
4. You can make sure your subject is within the flash unit's automatic exposure control range by setting the power switch at \mathcal{N} mark. If the subject is within the auto operating range and proper exposure is possible, you will hear the PCV sound for about 1.5 sec. after the exposure. If the sound is not heard, use a more powerful flash setting or move closer to the subject. (see page 20)

5. After the shooting is over, turn off the power switch.

- When used with the Super A, Super Program, Program A, Program Plus or 645 camera with the aperture ring of the A-series lens set at A, the aperture is automatically set to the programmed f-stop on completion of the charging.

Setting	For subjects between:
RED	3.5 and 7.1 meters (11.5 and 23.3 ft.)
RED or GREEN	1.4 and 3.5 meters (4.6 and 11.5 ft.) Generally, when the subject is closer to the minimum distance GREEN is used.
GREEN	0.6 and 1.4 meters (2 and 4.6 ft.) Always use this setting for the minimum range.

Note: As these distances are easily determined, it is usually sufficient to make a rough mental estimate of them. When in doubt, however, focus on the subject with the lens, and check your estimation against the lens' distance scale. Even if you change the ASA/ISO film speed, the distance range remains the same. Set the aperture indicated in the aperture value scale on the flash unit to the lens.



Standard manual flash at the M setting is especially useful for exposure situations where it is necessary to override the auto flash exposure system for free selection of lens aperture or shutter speed. In addition, by varying the light intensity levels (FULL, 1/2, 1/4 and 1/8) increased versatility in aperture selection may be gained for shooting distance, while the capability to reduce light intensity levels is highly useful for close-up work requiring faster recycling times.

When the Super A, Super Program, Program A, Program Plus or 645 is used at the M setting, you can use slow shutter speed synchronization.

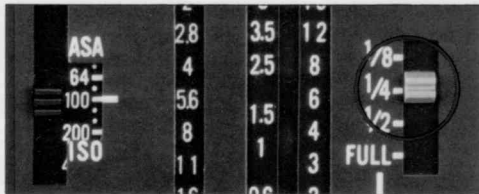
Note: When this flash is used on the Super A, Super Program, Program A, Program Plus or 645 with the aperture ring of the A-series lens set at A, the "dedicated" flash function does not work.

1. Set the ASA/ISO film speed in the ASA/ISO window.
2. Set the flash mode selector to "M". Choose a light intensity level by the selector for instance, FULL.
3. After calculating the f-stop with flash control panel, set the calculated aperture to the lens. For example, at ASA/ISO 100, when you select "FULL" light intensity, the f-stop is f/4 at 5m (16 ft.) distance, f/2 at 10m (32 ft.) distance. (chart 1)
4. Turn the power switch to ON, shoot anytime after the flash ready lamp lights.
5. Turn off the power switch after the shooting is over.

Selecting Light Intensity

At manual operation, you can select the light intensity level in four steps FULL, 1/2, 1/4 and 1/8. By using smaller light intensity level, you can get faster recycling time and more number of flashes. It is highly useful for close-up works and the shooting with automatic film winder.

Select a desired light intensity level by the selector lever. Read the proper f-number lined next to the subject distance on the flash control panel. For example, setting the light intensity level to 1/4 with ASA/ISO 100 film, you get f/2 at 5m or 16 ft. and f/4 at 2.5m or 8 ft.



Calculation Based on Guide Numbers

You can also calculate the correct aperture setting based on guide numbers given in the following table and using the formula:

$$\text{Aperture} = \frac{\text{Guide Number}}{\text{Flash-to-Subject Distance}}$$

For example, with ASA/ISO 100 at 5 meters (16.5 ft.) $20 \div 5 = 4$ ($66 \div 16.5 = 4$), thus use f/4 etc.

Table of guide numbers in meters and (ft.)

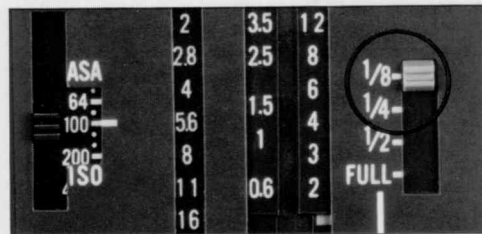
ASA/ISO Light intensity	25	50	100	200	400
FULL	10 (33)	14 (46)	20 (66)	28 (92)	40 (132)
1/2	7 (23)	10 (33)	14 (46)	20 (66)	28 (92)
1/4	5 (16.5)	7 (23)	10 (33)	14 (46)	20 (66)
1/8	3.5 (11.5)	5 (16.5)	7 (23)	10 (33)	14 (46)

Note: When you return the flash mode to Auto, do not forget to reset the light intensity level selector to FULL.

Combined use with Motor Drive and Winder

When you use the AF200T together with a Motor Drive or a Winder you can shoot the close subject continuously at 1/8 light intensity level. At this time, start shooting about 30 seconds later after the flash ready lamp lights in order to charge the flash unit fully.

Numbers of continuous flash at film winding speed of approximately 2 frames per second are about 5 times with fresh alkaline manganese batteries.



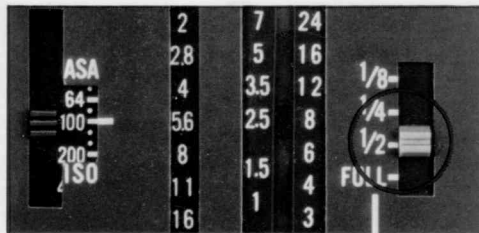
Day-Light Synchro-Flash

You can fill in the shadow area of the subject with the AF200T, when you shoot a back-lit subject or a subject by the bright window.

1. Set your camera to either AUTO or Manual. In the case of the Super A or Super Program, the most convenient camera mode is the Shutter-priority AE mode at 125X shutter speed setting. Do not turn on the power switch at this stage of operation.

2. Adjust the lens aperture so that the shutter speed indicated in the finder becomes 1/125 sec. (1/100 sec. with Program A, Program Plus or MG; 1/75 sec. with LX; 1/60 sec. with 645 camera). Suppose the aperture is f/5.6 (ASA/ISO 100) as shown in the photo. In the case of the Super A or Super Program, read the f-number off the LCD in the finder.

3. Estimate the distance between the subject and the flash head. That is, for instance, 2.5m or 8 ft.
4. Set the AF200T at M mode and slide up the light intensity level selector to line up the lens aperture and the subject distance mentioned above on the flash control panel. In this example, it is 1/2 light level.
5. Turn on the power switch of the flash unit and take a picture when the ready lamp lights up.



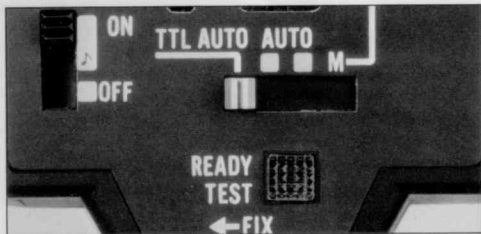
Power Switch

When not using the flash unit for long intervals, turn the power switch to OFF to save batteries.

Flash Ready Lamp

When the flash ready lamp lights up, you are all set to take a picture.

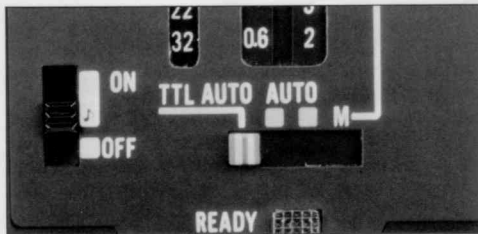
It is recommended, though, to wait for a few more seconds so that the flash light emission becomes more stable. The ready lamp also works as the flash test button.



Automatic Exposure Check

The power switch works as an audible automatic exposure check switch.

When you use TWO-LEVEL Auto Flash and TTL Auto Flash modes, you can make sure your subject is within the flash unit's automatic exposure control range by setting the power switch at ♪ mark. If the subject is within the auto operating range and proper exposure is possible, you will hear the PCV sound for about 1.5 sec. after the



exposure. If the PCV does not sound, open the lens aperture or move closer to the subject. When the subject is too close to the flash unit and out of the automatic exposure control range, you cannot obtain the correct exposure even if the PCV sounds for confirmation. Check the proper exposure control range on the flash control panel.

Viewfinder Flash Exposure Confirmation

In combination with the Pentax cameras mentioned on page 8, you can confirm your subject is within the automatic exposure control range in viewfinder. If the flash exposure is correct, the flash ready indicator lights after shutter release, or the indicator flickers on and off. While the indicator is flickering, even if you release the shutter release button, the flash will not work and the shutter speed will not be set automatically, either. Incidentally, if the flash ready mark or the flash auto check mark continuously lights right after the shutter operation, you can take pictures continuously.

Type

Multi-mode, thyristor electronic flash unit with TTL Auto, Two-Level Auto, Four-Level Manual flash.

Mounting

Direct to camera hotshoe

Guide Number

Auto: 20-4 stepless

(ASA/ISO 100, m)

Manual (Four steps): FULL — 20, 1/2 — 14, 1/4 — 10, 1/8 — 7

Flash Duration

1/1,500 sec. — 1/30,000 sec.

**Number of Flashes/
Recycling Times**

Power Source	Recycling Times	Number of Flashes
Manganese battery	10 sec.	60 times
Alkaline manganese battery	8	200
Ni-Cd battery	4	90

Conditions: At FULL output manual. Temperature: 20°C

Batteries used are the ones made within three months.

Faster recycle on auto depending upon flash distance and f-number used.

Coverage Angle

50° vertically, 65° horizontally (covering 28mm Wide angle lens)

Color Temperature

Balanced for daylight

**Auto Flash Range
(ASA/ISO 100, m)**

Auto (Red): 1.4—7m, Auto (Green): 0.6—3.5m, TTL Auto: 0.6—16.7m (F/22—f/1.2)

**Camera's Film
Speed Range**

ASA/ISO 6 - 800 with LX; 25 - 800 (TTL Auto) with Super A, Super Program or 645

Aperture on Auto

Mode	ASA/ISO 100	ASA/ISO 400
Auto (Red)	f/2.8	f/5.6
Auto (Green)	f/5.6	f/11

Automatic Aperture setting system

Works only when used with Super A or Super Program in its Programmed AE or Shutter-priority AE mode, or only when used with Program A or Program Plus in its Programmed AE mode.

	ASA/ISO 100	ASA/ISO 400
Auto (Red)	f/2.8	f/5.6
Auto (Green)	f/5.6	f/11
TTL Auto	f/4	f/8

Works when used on Super A, Super Program or 645 with aperture ring of A-series lens set at A.

Auto Sensor Angle

Approximately 20° vertically and horizontally

Auto Exposure Check

Confirmed by about 1.5 sec. PCV sound when the power switch is set at \mathcal{D} mark.

**Synchronization/
Dedicated Flash
Features**

Flash ready indication, Finder auto exposure check, Automatic synch-shutter speed set, TTL auto operation, Flash Override system (Camera's auto exposure system overrides flash exposure when indicated shutter speeds exceed required flash synchronization speed.)

Power Sources

Four AA size 1.5V manganese, alkaline-manganese or Ni-Cd batteries.

Size and Weight

62(W) x 97(H) x 58(D)mm, 175g (without batteries)

Accessories

Case

Optional Accessories

AFW1 Wide Angle Adaptor (for up to 35mm-format 24mm lens)
AFT1 Telephoto adaptor (for up to 35mm-format 85mm lens)

- Recycle time and number of flashes depend on power source used condition of the batteries and distances between flash and subject are given as approximations only.

How to Attach the Adaptors

Slide either adaptor into the slots at the top and bottom of the flash head, making sure to push it all the way in until it is centered over the flash head.



Wide-Angle Adaptor (AFW1)

Designed principally for ultra-wide-angle lenses down to 24mm, and improves results with wide-angle lenses.

Auto Flash: When the wide-angle adaptor is employed maximum auto flash range is reduced to 5 meters (16.4 ft.) at the RED auto setting and 2.5 meters (8.2 ft.) at the GREEN auto setting. Index the ASA/ISO film speed as for normal auto exposure, but use the respective "W" index of both RED and GREEN auto modes. During TTL Auto operation, compensation for the Adaptors is performed by the camera's metering system.

Manual Flash: To compensate for manual flash exposure with the wide-angle adaptor index, halve the ASA/ISO film speed on the ASA/ISO film speed index on the flash unit's data panel (if you are using ASA/ISO 100 film, for example, align the number 50 with the white index line). Then, choose the f-number opposite the subject distance in the same manner as with manual flash when the adaptor is not used.

Telephoto Adaptor (AFT1)

The telephoto Adaptor improves results with telephoto lenses from 85mm to 200mm lenses by offering more concentrated light output.

Auto Flash: When the Telephoto Adaptor is used flash range increases to 10 meters (32.8 ft.) at the RED auto setting and 5 meters (16.4 ft.) at the GREEN auto setting. As with the wide angle adaptor, index the ASA/ISO film speed in the same manner as with normal auto exposures, but use the respective "T" index for both RED and GREEN auto modes to find the flash range. During TTL Auto operation, compensation for the Adaptors is performed by the camera's metering system.

Manual Flash: Compensate for manual flash with the telephoto adaptor by doubling the ASA/ISO film speed setting of the ASA/ISO film speed index on the data panel. (with ASA/ISO 100 film, for example, align the number 200 with the white index line.) Then, choose the f-number opposite the subject distance in the same manner as with manual flash exposure without the adaptor.

