Kenko

AUTO DIGI METER
KFM-1100
INSTRUCTION MANUAL

Instruction Manual
AUTO DIGI METER KFM-1100

The Kenko AUTO DIGI METER KFM-1100
has the following features:

●Exposure meter with a built-in microprocessor for flash light and ambient light measurements for a broad range of shooting conditions

●Analyze function for calculating and displaying the ratio of flash light to ambient light.

●Memory function for storing two measurement values, Averaging function to calculate the average of two stored measurement values, and a Brightness Difference function to display a measurement value in terms of its difference to a specified reference value.

●Calculation functions for shadow-based exposure and highlight-based exposure readings for reflected-light readings with attachments such as a Spotfinder.

●(Alt) mode for "custom settings" to allow users to customize special settings, such exposure correction value and number of shutter speed stops.

●Measurement values are displayed both in analog and digital format on the display of the meter, for easy-to-read, error-free visually reading.

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Safety-related Icons

The following icons are used in this manual to alert you to important information for preventing accidents due to improper handling of the instrument.

⚠ **WARNING**	This indicates a danger that improper use of the instrument will lead to the death or serious injury of the user.
⚠ **CAUTION**	This indicates a danger that improper use of the instrument will lead to injury to the user or to property damages.
🚫 **PROHIBITION**	This denotes actions to be strictly avoided. Make sure to avoid these actions.
🚫 **PROHIBITION**	This denotes actions to be avoided. Do not attempt to disassemble the product.

Safety Warnings and Cautions

To ensure proper use of the instrument, take special care to observe the following handling instructions when using this instrument. Read this instruction manual carefully and keep it securely in a place where you can refer to it readily.

⚠ WARNING

🚫 Do not use the instrument in a place where inflammable or combustible vapors (e.g. gasoline) are present. Otherwise there is a risk of causing a fire.

🚫 Do not throw batteries into fire. Do not recharge, short circuit, heat or disassemble batteries. Otherwise, there is a risk of causing fire or injury due to an explosion or fluid leakage.

🚫 Never attempt to disassemble or modify the instrument yourself. Otherwise there is a risk of causing fire or electric shock.

🚫 The instrument should not be operated if it is damaged, or smoke or odd smells occur. Doing so may result in a fire. In such situations turn off the power immediately, removing the battery, and contact the nearest authorized service facility for repair.

⚠ CAUTION

🚫 Do not use any batteries other than those designated for use with the instrument. When fitting batteries, make sure to align them according to the polarity shown on the instrument (plus "+" and minus "–"). Otherwise there is a risk that the batteries may leak or become damaged, leading to fire, injury or pollution of the surrounding environment.

🚫 Keep the instrument out of reach of children. Fall of the instrument may lead to injury and twining of the strap around the neck may cause suffocation.
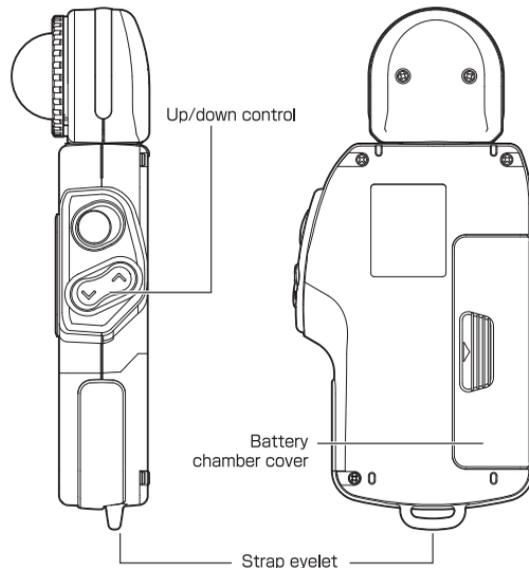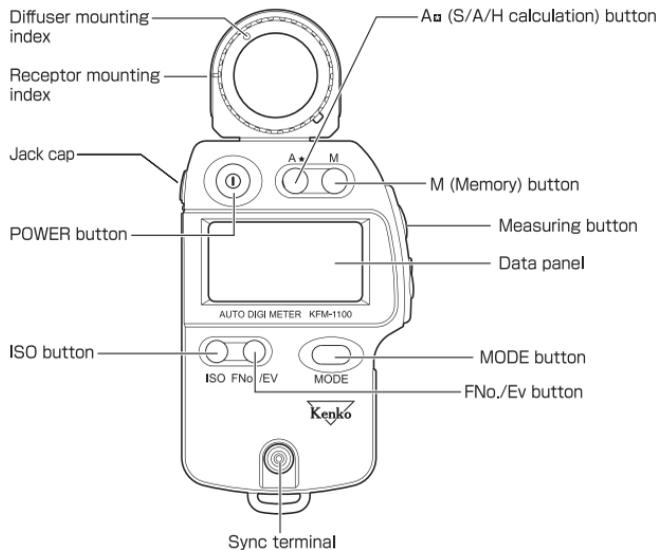
STATEMENT OF FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

● Reorient or relocate the receiving antenna.

● Increase the separation between the equipment and receiver.

● Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

● Consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.

Names of Parts and Displays

Diffuser mounting index

Receptor mounting index

Jack cap

POWER button

ISO button

A▫ (S/A/H calculation) button

M (Memory) button

Measuring button

Data panel

AUTO DIGI METER   KFM-1100

ISO   FNo./EV   MODE

MODE button

FNo./Ev button

Kenko

Sync terminal

Up/down control

Battery chamber cover

Strap eyelet

Data panel displays

For the purpose of explanation, the diagram on pages 5 and 6 shows all indicators that light up on the LCD.
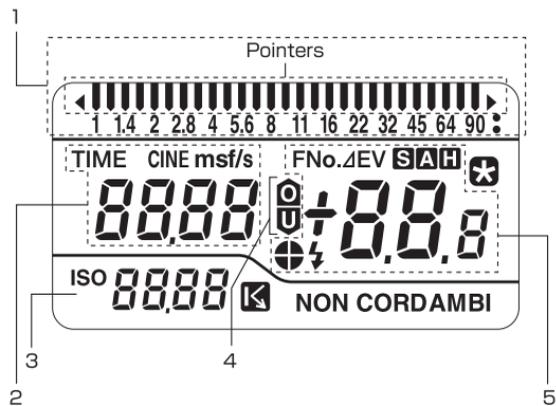
1. Analog scale / Pointers

Pointers mark FNo. (f-number) values.
Pointers light up to indicate measurement values (f-number) on an analog scale. When using the memory function or other functions, up to four pointers can be lit up at the same time, indicating two readings in memory (two pointers), the average of these two values, and the latest measurement value.
The small digit to the right of the two-digit reading (f-number) on the digital readout indicates a fractional value between stops. The value shown on the analog display is rounded down or up to the nearest 0.5 stops (0.2 stops is rounded down to 0, 0.3 and 0.7 stops are rounded to 0.5, and 0.8 stops is rounded up to 1, i.e. the next full stop).
▶ lights up if a reading is under the instrument's display range.
◀ lights up if a reading is over the instrument's display range.

2. Shutter speed/framing-rate display

Displays the current shutter speed or framing-rate, which is set with the up/down control.
When shutter speed is between 0.6 to 50 sec, **s** is displayed; between 1 min. and 30 min., **m** is displayed.
Setting range: Shutter speed: 30 min. to 1/8000 sec. (1, 1/2, 1/3 stops)
Framing-rate: 8 to 128 f/s

3. Film speed display

lDisplays the film speed, which is set using the ISO button and up/down control. Alt is displayed when the meter is in *Ri t* mode.
Setting range: ISO 3 to 8000

4. Over-/under-range indicators

🅞 or 🅤 blinks if the reading is out of the meter's measurement range or display range.
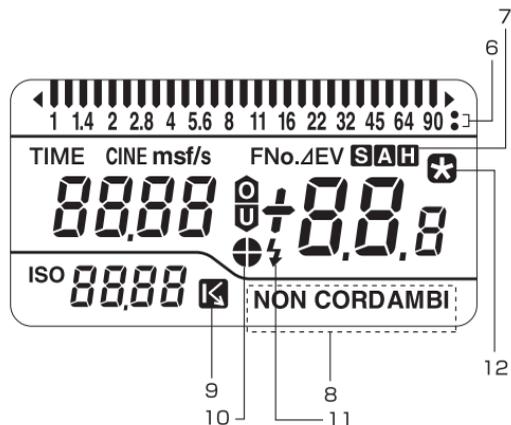
5. Digital readout

Displays the f-number (when display units are set to **FNo.**) or exposure value (when display units are set to **Ev**), in increments of 0.1 stops.
When measuring flash light, only the f-number (**FNo.**) is displayed.
When measuring brightness difference, readings are displayed in Δ**Ev.**
Display range: f-number (FNo.) 1.0 to 90+0.9 stops
Exposure value (Ev) -17 to 40.8

8. Measuring mode display

Press the MODE button repeatedly to select and display one of the three measuring modes: **AMBI**, **CORD** or **NON CORD**. The measuring mode changes in the following order each time the MODE button is pressed: **AMBI → CORD → NON CORD → AMBI** ...

9. Reflected-light indicator

This indicator lights up when you use a reflected-light attachment or Spotfinder 5°.

10. Analyze scale

This indicates the approximate proportion of flash light in the total exposure when measuring flash light.

11. Flash light measuring indicator

This indicator lights up during measurement in **CORD** mode and **NON CORD** mode.

12. Brightness difference function indicator

This indicator lights up when you press the **A** (S/A/H calculation) button. For details of the brightness difference function, see page 22.
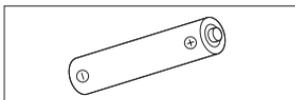
6. Memory indicator

When you press the M button to store a reading in memory, one of these dots lights up. If one reading is stored in memory, one dot is displayed; if two readings are in memory, two dots are displayed.

7. S/A/H (Calculation mode) indicators

A : This lights up when you press the **A** (S/A/H calculation) button.
H / **S** : S or H can be selected by using the up/down control while holding down the **A** (S/A/H calculation) button during reflected-light readings. (When you use a reflected-light attachment or Spotfinder 5°.)
Select to **S** measure the exposure of shadow areas;
select to **H** measure highlight areas.

Preparations

Battery

1. Preparing

The instrument uses a single alkaline dry cell (LR-6/AA/1.5 V).
Be sure to use only specified batteries.
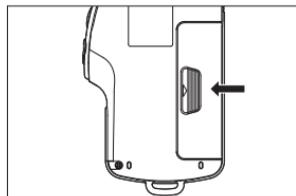
2. Inserting

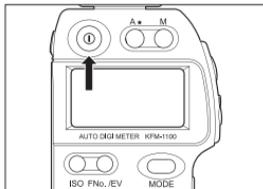**1** Remove the battery chamber cover by sliding it lightly in the direction of the arrow.

2 Insert the battery with the plus (+) and minus (-) ends oriented according to the diagram in the battery chamber.
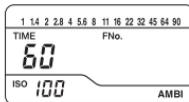
★ Insert the battery correctly to avoid malfunction.

**3** Replace the battery chamber cover.

3. Checking

The instrument automatically checks the
battery when power is on.
After a new battery is installed, the display
appears as shown below after the power is
turned on.

If you turn on the meter when the battery
power is running low, "bc" and a battery level
indicator will appear on the display for approx.
0.5 sec. before the normal display appears.
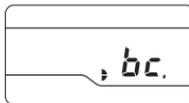
If you turn the power on when there is not
enough battery power to take measurements,
or if the battery runs low during measurement,
a blinking "bo" will display for approx. 1 min.
and then the display will switch off. If this
ppens, replace the battery with a new one.

●To conserve battery power, the instrument automatically switches itself off if no
operation has been performed for approximately 10 minutes. To commence
measurement when the display is switched off, press the POWER button.
(At this time, all settings for ISO speed, shutter speed, measuring mode and display
units are saved, but the last reading and values in memory are lost.)

Setting ISO speed
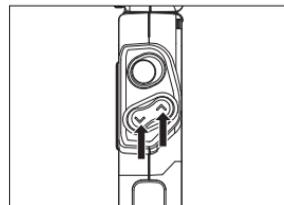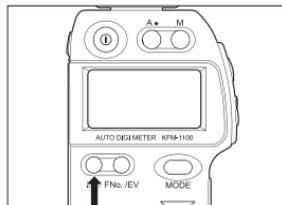
To set the ISO speed, use the up/down control while holding down the
ISO button.

●Each time you press ⌃ , the film speed increases by 1/3-stop. Holding down the
button increases the value continuously. Even if you continue pressing ⌃ , the
maximum setting is ISO 8000.

●Each time you press ⌄ , the film speed decreases by 1/3-stop. Holding down the
button decreases the value continuously. Even if you continue pressing ⌄ , the
minimum setting is ISO 3.

●Be sure to set ISO speed to the correct setting, since all measurement results are
based on the set value.

●If you change the ISO speed after you take a measurement, the reading will be
recalculated and displayed accordingly.

Selecting a measuring method

You can choose between two measuring methods—incident-light reading and reflected-light reading, according to the shooting conditions or purpose of the image.

When used with its various accessories, the Kenko AUTO DIGI METER KFM-1100 can perform exposure measurements in either of these two ways. To perform an incident-light reading, the Kenko AUTO DIGI METER KFM-1100 is used with the Spherical Diffuser or Flat Diffuser. To perform a reflected-light reading, the meter is used with the Spotfinder 5° (acceptance angle of 5°) or reflected-light attachment (acceptance angle 40°).
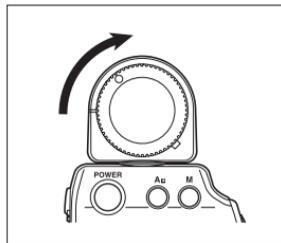
The Spherical Diffuser for incident-light readings is supplied as a standard accessory with the AUTO DIGI METER KFM-1100. Accessories other than the Spherical Diffuser are sold separately. (See page 31 .)

1. Incident-light readings

When performing incident-light readings, use the Spherical Diffuser for three-dimensional subjects such as portraits, and architectural or landscape photographs. Use the Flat Diffuser (optional accessory) when you photograph flat surfaces such as documents or paintings, or when you want to measure lighting ratio (See page 28 .).

Attaching the Spherical Diffuser

Align the white dot on the diffuser with the index on the meter receptor head, push the diffuser into the receptor head, and turn the diffuser clockwise until it stops.

Removing the Spherical Diffuser

Rotate the diffuser anticlockwise until it stops, and pull the diffuser to detach it.
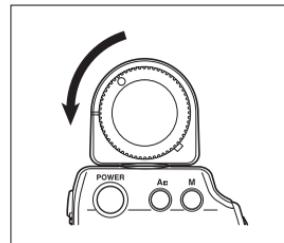
To take an incident-light reading, position the meter near the subject and aim the Spherical Diffuser directly at the camera.

●The receptor can rotate through a range of 270° degrees, so that you can use the meter in an almost any photographic configuration.

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2. Reflected-light readings

To use a meter for reflected-light measurements, you need to use one of the Reflected-light attachment (40° acceptance angle) (optional accessory). The exposure is based on the average of the light reflected from all subjects within the meter's field of view (approximately 40°). If you need to do selective metering or take spot measurements of specific parts of a subject, use the Spotfinder 5° (5° acceptance angle) (optional accessory). (See page 11.)
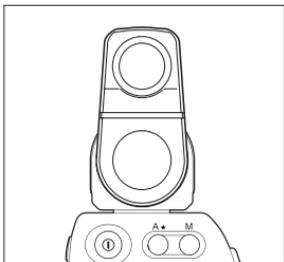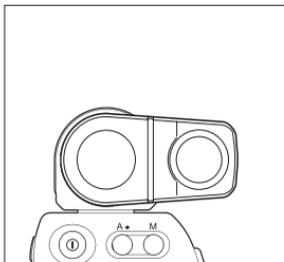To attach and detach these accessories, follow the same procedure as described for the Spherical Diffuser. (Attach and detach devices by rotating the holder (ring).)

Vertical mounting	Horizontal mounting

To take a reflected-light reading, aim the meter's receptor head from the camera position so that it reads the area you want to measure.
● The receptor can rotate through a range of 270° degrees, so that you can use the meter in an almost any photographic configuration.

Difference between incident-light and reflected-light readings

Exposure can be measured in two basic ways. One way is to measure the light incident on the subject, i.e. the brightness of light illuminating the subject (illuminance) (see Fig. 1); the other is to measure the light reflected by the subject, i.e. the intensity of the light reflected from the subject in the direction of the camera (luminance) (see Fig. 2).

Fig. 1 Incident-light method

Incident-light Light source Camera

Fig. 2 Reflected-light method
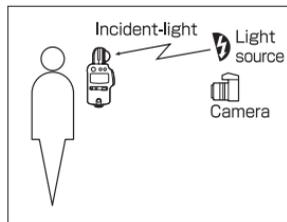
Reflected-light Light source Camera
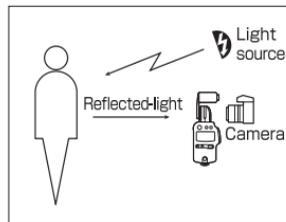
Before selecting the most suitable measuring method, you need to fully understand the different sources of light you are working with, as well as the influence of the positions and direction of receptors during measurement.

Incident-light readings

In general photography, light from the illuminating light source reflects off the subject and passes through the lens to form an image on the film and image sensor surfaces for exposure.
To accurately calculate exposure in incident-light readings, you need to know how much of the illuminating light is actually reflected from the object to the camera. To do this, you need to know how light or how dark the subject is, i.e. the reflectance of the subject.
Since a typical value of reflectance for many scenes is 18%*, this value is used to calculate the light intensity reflected from the subject towards the camera. The exposure reading (f-number and shutter speed) are then calculated to reproduce the metered area as a midtone with 18% reflectance.

Thus, incident-light readings are based on this standard value of 18% reflectance. This means that areas of subjects having a reflectance higher than 18% will turn out brighter (e.g. white), while areas of reflectance lower than 18% will turn out darker (e.g. black). This will produce a clear contrast in the picture of the subject. From this, we can see that this measuring method provides for natural tonal range over the entire composition.

* The value of "18%" has been determined to be a typical reflectance value for many different subjects.

Fig. 3
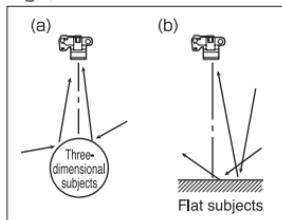
To make effective incident-light exposure readings, you must use the Spherical Diffuser and Flat Diffuser creatively.

When photographing three-dimensional objects such as people, the highlights and shadow areas of a composition depend on the direction of the main illuminating light source. Exposure is also influenced by any light reflected towards the camera from the sides or rear of the subject (Fig. 3 (a)). In these situations, the Spherical Diffuser captures the illuminating light coming from different directions at the position of the subject, so that the exposure reading takes into account the contribution of this light on illuminating the subject.

On the other hand, with flat subjects such as pictures and documents, light from the sides or rear of the subject generally make little or no contribution to illuminating the subject (Fig. 3 (b)). So, for these situations, accurate exposure readings are made using a Flat Diffuser to capture only the illuminating light from the front of the subject.

Reflected-light readings

Reflected-light exposure readings directly measure the amount of light (luminance) reflected from the subject to the camera. Unlike the case ofincident-light readings, this method does not rely on the assumption of a standard subject reflectance of 18%. Based on the measured amount of light falling on the subject, the meter calculates the appropriate exposure value for reproducing the subject on film at a suitable medium density (midtone). This means that in reflected-light readings, all subjects, regardless of their reflectance, i.e. regardless of whether they are bright or dark (white or black), will be reproduced at the same tonal density (midtone). For this reason, when making reflected-light exposure readings, it is important to decide which area of the subject to measure, since the reflectance will generally vary quite widely over the composition under different conditions.

There are two basic methods for making reflected-light exposure readings. These methods use different distances and angles between exposure meter and subject. One method is "averaging metering", where the exposure of the entire composition is measured (Fig. 4). The other is "selective metering", where illumination is measured only for a specific part of the composition (Fig. 5).
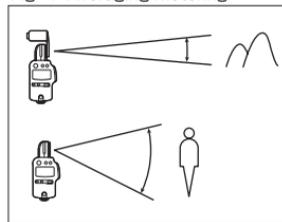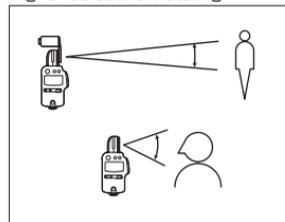
Fig. 4 Averaging metering   Fig. 5 Selective metering

In averaging metering, all the reflected light from the entire subject that fits within the field of view of the meter is measured using a receptor with a relatively wide acceptance angle. If the average reflectance of the entire subject is close to 18%, the exposure reading will be close to the value produced by an incident-light reading. For this kind of situation, this is the fastest and easiest kind of reflective-light reading to make.
However, if there is a large bright or dark area within the camera's field of view, or if there is any backlighting, these factors may cause the exposure reading to be too high or too low. So, caution is needed in these situations.
In selective metering, measurements are taken so that only light reflected from a specific, selected part of the subject falls within the acceptance angle of the meter. This is achieved by using a receptor with a narrow acceptance angle, or by placing the receptor sufficiently close to the subject. Since the meter is not affected by light from other parts of the composition, the selected part of the subject is reproduced at a suitable tonal density. When the measured part has a normal reflectance, e.g. human skin, then, as in the case of averaging metering, the exposure reading will give a very similar result to incident-light reading. Thus, for photographing subjects of normal reflectance, such as people, this method offers highly accurate exposure readings. However, this method can cause problems if you selectively measure very bright (high reflectance) or very dark (low reflectance) subjects, because the meter assumes that the whole image should have the same tonal density as the selected area. So take special care about which part of a subject you select to measure when using selective metering.
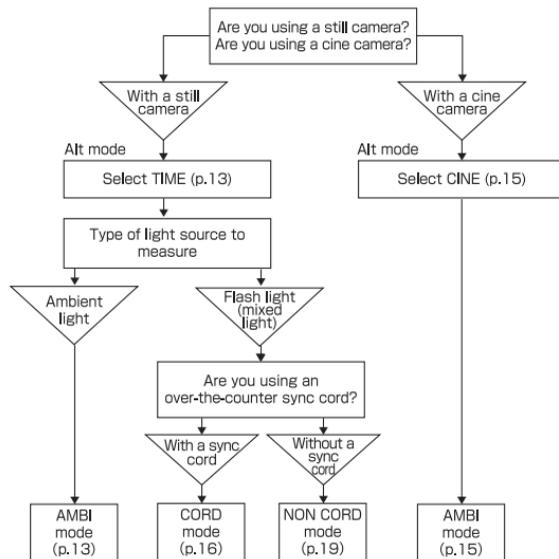
> There are various advanced selective area metering methods, such as the highlight standard exposure method, where an exposure reading is taken of a bright (white) part of the composition; the shadow standard exposure method, where a dark (black) part of the composition is measured; and a method for determining exposure by evaluating the contrast of the subject and then forecasting how it will come out on the picture.
> To make full use of selective metering, refer to specialist books and photo magazines. You will find that selective metering can give you very precise control over exposure.

Basic Operation
Here we explain the basics of using the instrument to take exposure readings.

Select a measuring method

●Flash light refers to artificial momentary lighting from light sources such as electronic flashes, strobe flashes, and speed lights.

●Ambient light refers to continuous lighting from sources such as natural light (sunlight) and electric lights (including fluorescent lights).

●In either case, both incident-light exposure readings and flected-light exposure readings can be made.

●When measuring flash light in the CORD mode, use an over-the-counter sync cord.

Are you using a still camera?
Are you using a cine camera?

With a still camera

Alt mode
Select TIME (p.13)

Type of light source to measure

Ambient light

Flash light (mixed light)

Are you using an over-the-counter sync cord?

With a sync cord

Without a sync cord

AMBI mode (p.13)

CORD mode (p.16)

NON CORD mode (p.19)

With a cine camera

Alt mode
Select CINE (p.15)

AMBI mode (p.15)

Measuring ambient light

1. With a still camera
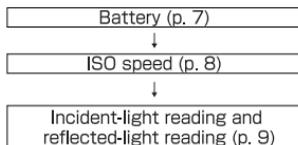
Battery (p. 7)

↓

ISO speed (p. 8)

↓

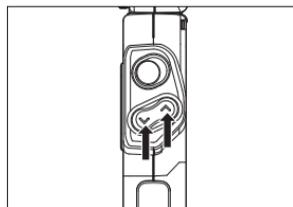| Incident-light reading and reflected-light reading (p. 9) |
| :---: |

1 Prepare the instrument to start taking readings.
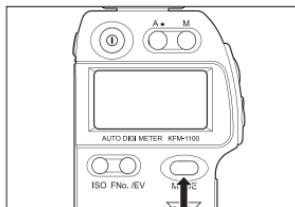
2 Press the MODE button to switch the mode display to **AMBI**.

● When the measuring mode is changed, previous readings and values in memory are deleted.

3 Use the up/down control to set the desired shutter speed.

● Shutter speed can be set within the range of 30 min. to 1/8000 sec.

● Each time you press ⌃ , the shutter speed increases. Holding down ⌃ increases the value continuously. The shutter speed cannot be increased to above 1/8000 sec., even if you continue pressing.

● Each time you press ⌄ , the shutter speed decreases. Holding down ⌄ decreases the value continuously. The shutter speed cannot be decreased to below 30 min., even if you continue pressing.

● The shutter speed can also be changed after meter readings.
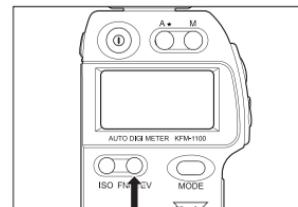
4 Press the display-selector button to set the exposure display units to **FNo.** or **Ev**.
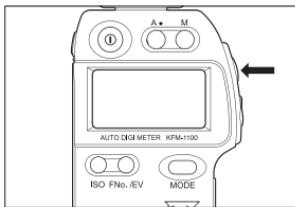
Display example

[5] Press the measuring button to take readings.

● The meter will continue to take readings as long as the measuring button is held down.
As readings are taken, the results are displayed on the digital readout in the units set in step 4.

● When you release the measuring button, the meter stops taking measurements and the last reading will remain on the digital readout.
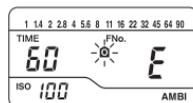
Display units are FNo.

If you set your desired shutter speed, the f-number required for proper exposure at that shutter speed is displayed on the digital readout. The reading is also displayed on the analog scale by a pointer (▮).
Ex.: The display shows a reading of F4.0+0.2-stops.
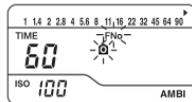
If the exposure reading is outside the display range of the instrument, the f-number is not displayed. Instead, FNo. and 🅾 (over) or 🆄 (under) will blink to indicate that the reading is out of range. The ◀ or ▶ indicator on the analog scale will light. If the reading is over the display range, reset the shutter speed to a faster value; if it's under the display range, reset to a slower shutter speed. In this way, you will be able to determine an appropriate combination of shutter speed and f-number.

If the reading is outside the measurement range of this instrument, **E** (error) will be displayed on the digital readout, and 🅾 (over) or 🆄 (under) will blink to indicate that the measurement is out of range.

Display units are Ev
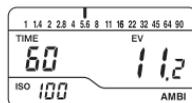
The exposure is displayed in of Ev (exposure value), regardless of the shutter speed setting.
Shutter speed, the analog scale and the pointers along the analog scale are shown in the same as when the meter is set to FNo. display.
Ex.: The display shows a reading of 11.2 (Ev).
The shutter speed and FNo. corresponding to the shutter speed are displayed on the analog scale.
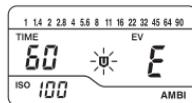

If the reading is outside the measurement range of this instrument, **E** (error) will be displayed on the digital readout, and 🅾 (over) or 🆄 (under) will blink to indicate that the measurement is out of range.

2. With a cine camera

Battery (p. 7)

↓

ISO speed (p. 8)

↓

Incident-light reading and reflected-light reading (p. 9)

See Custom Setting Mode for CINE mode (p.32 and 33).

1 Prepare the instrument to start taking readings.
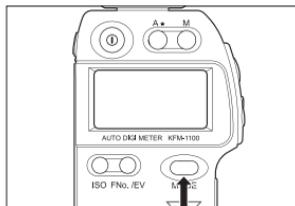
2 In CINE mode, the measuring mode is fixed to **AMBI**.

● Measuring mode cannot be changed.
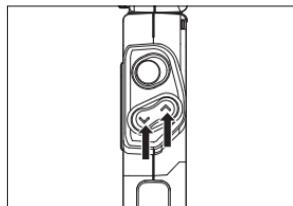
3 Use the up/down control to set the framing-rate of the camera you are using.

● Eight framing-rates can be set: 8, 12, 16, 18, 24, 25, 30, 32, 64, and 128 frames/sec. (The appropriate shutter speed, corresponding to a shutter opening of 180°, is set automatically by the exposure meter.)

If the opening of your camera's shutter is not 180°, the film speed should be adjusted as follows.

Shutter opening and film speed adjustment

Shutter opening	Film-speed adjustment
160°	-1/3
220°	+1/3

-1/3 : Set the film speed to 1/3-stop slower than the film speed you are using. (Ex.: ISO 400 to 320)

+1/3: Set the film speed to 1/3-stop faster than the film speed you are using. (Ex.: ISO 400 to 500)

Measuring flash light

1. With commercially available sync cord
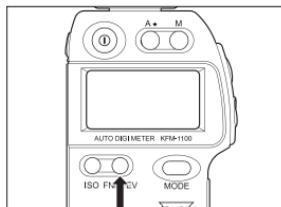
4Press the display-selector button to set the exposure display units to **FNo.** or **Ev**.

●When the meter is set to display in Ev, FNo. is also displayed on the analog scale.
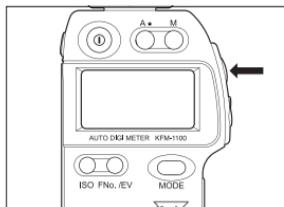
5Press the measuring button to take readings.

●The meter will continue to take readings as long as the measuring button is held down. As readings are taken, the results are displayed on the digital readout in the units set in step 4. Readings are displayed on the analog scale at the same time.

```
Battery (p. 7)
↓
ISO speed (p. 8)
↓
Incident-light reading and
reflected-light reading (p. 9)
```

1Prepare the instrument to start taking readings.

2Press the MODE button to switch the mode display to **CORD**.

●When the measuring mode is changed, previous readings and values in memory are deleted.

●Settings for shutter speed and display units are automatically adjusted as follows.
1/640 to 1/8000 sec.:
    adjusted to 1/500 sec.
1.3 sec. to 30 min.:
    adjusted to 1 sec.
Ev: adjusted to FNo.

* Display example is the same as the case of a still camera. (Refer to page 12.)
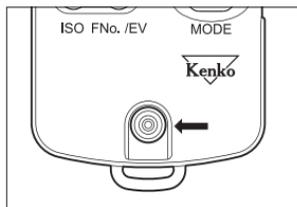
3 Attach the flash sync cord to the instrument's sync terminal.

★ Take care when connecting the flash to the instrument using any commercially available sync cord, as the flash may fire.
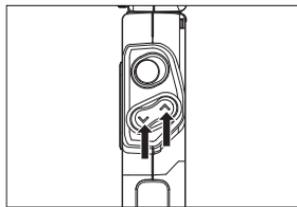
4 Use the up/down control to select the shutter speed of your camera.

● Shutter speeds can be set within the range of 1 sec. to 1/500 sec. (The speed can be set within the flash sync speed range of your camera.)

● Each time you press ⌃ , the shutter speed increases. Holding down ⌃ increases the value continuously. The value cannot be increased above 1/500 sec. even if you continue pressing.

● Each time you press ⌄ , the shutter speed decreases. Holding down ⌄ decreases the value continuously. The value cannot be decreased below 1 sec. even if you continue pressing.

5 Press the measuring button to take a reading.

● The flash light is released and the meter takes a single reading and displays the result on the digital readout. The reading is also displayed on the analog scale. The proportion of flash light illuminating the composition is shown on the analyze scale.

● If there is no flash connected to the sync terminal, the meter measures and displays the exposure for ambient light only.
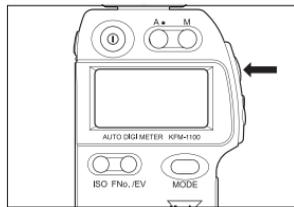
★ After confirming that the flash is completely recharged, take a reading.

★ If you change the shutter speed setting after taking a flash light reading, the **FNo.** and analyze scale will change accordingly.

Display example

The f-number corresponding to the shutter speed set in step 4 is displayed on the digital readout as well as on the analog scale. The proportion of flash light illuminating the composition is shown on the analyze scale. Ex.: The display shows an f-number reading of F8.0+0.9stops.

If the exposure reading is outside the display range of the instrument, the f-number is not displayed. Instead, FNo. and ⬛ (over) or ⬛ (under) will blink to indicate the reading is out of range. The ◄ or ► indicator on the analog scale will light.

17
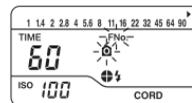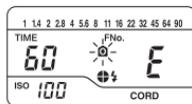
If the reading is outside the measurement range of the instrument, **E** (error) will be displayed on the digital readout, and ⬛ (over) or **U** (under) will blink to indicate that the measurement is out of range.

★When measuring flash light using commercially available sync cord (**CORD** mode), the flash may fail to fire (e.g. if the trigger voltage of the flash is too low). In this case, take a reading without sync firing the flash (**NON CORD** mode).

2. Without commercially available sync cord available on the market

Battery (p. 7)
↓
ISO speed (p. 8)
↓
Incident-light reading and reflected-light reading (p. 9)
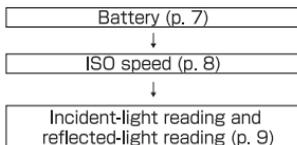
1 Prepare the instrument to start taking readings.
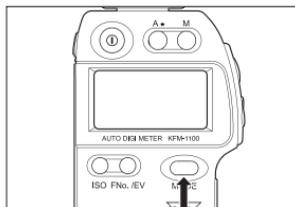
2 Set the mode display to **NON CORD** using the MODE button.

● When the measuring mode is changed, previous readings and values in memory are deleted.

● Settings for shutter speed and display units will be automatically adjusted as follows.
1/640 to 1/8000 sec.: adjusted to 1/500 sec.
1.3 sec. to 30 min.: adjusted to 1 sec.
Ev: adjusted to FNo.
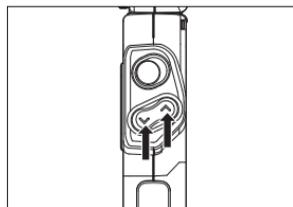
3 Use the up/down control to set the desired shutter speed.

● Shutter speeds can be set within the range of 1 sec. to 1/500 sec. (The speed should be within the flash sync speed range of your camera.)

● Each time you press ⌃, the shutter speed increases. Holding down ⌃ increases the value continuously. The value cannot be increased above 1/500 sec. even if you continue pressing.

● Each time you press ⌄, the shutter speed decreases. Holding down ⌄ decreases the value continuously. The value cannot be decreased below 1 sec. even if you continue pressing.
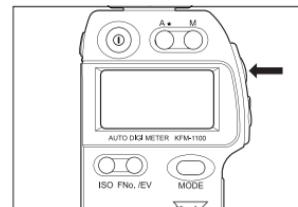
4 Press the measuring button and release it.

● The **NON CORD** mode symbol blinks to indicate that the meter is waiting for the flash to take a reading.

5 Fire the flash to take a reading.

● The meter detects the light of the flash and reads and displays the exposure on the digital readout. The reading is also displayed on the analog scale.

● To take further readings, repeat the process from step 4.

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● If the flash does not fire within approx. one minute after the meter goes into flash waiting mode, or if you press any button other than the measuring button during this time, the **NON CORD** mode symbol will stop blinking (stay on). Then, even if you fire the flash, no reading will be made. To change back to flash waiting mode, press the measuring button again.

When in NON CORD waiting mode, there is a slight risk that the meter makes an incorrect reading, by mistaking an intermittent light source, e.g. fluorescent light, as flash light.
To avoid this risk, take readings in **CORD** mode using any commercially available sync cord.

★ Fire the flash according to the directions given in the users' manual for the flash.

★ If you change the shutter speed setting after taking a flash light reading, the **FNo.** and analyze scale will change accordingly.

Display example

The f-number corresponding to the shutter speed set in step 3 is displayed on the digital readout as well as on the analog scale. The proportion of flash light illuminating the composition is shown on the analyze scale.
Ex.: The display shows an f-number reading of F8.0+0.9-stops

If the exposure reading is outside the display range of the instrument, the f-number is not displayed. Instead, FNo. and ▣ (over) or ▣ (under) will blink to indicate the reading is out of range. The ◄ or ► indicator on the analog scale will light.
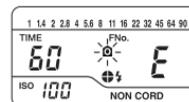
If the reading is outside the measurement range of this meter, **E** (error) will be displayed on the digital readout, and ▣ (over) or ▣ (under) will blink to indicate that the measurement is out of range.
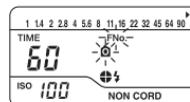
Analyze function for calculating ratio of flash light to ambient light

When making flash light readings, the instrument is able to calculate the proportion of ambient light and flash light in the total illumination. The proportion of ambient light and flash light can be checked on the analyze scale of the display.

How to read the flash/ambient light ratio

⚡ : 0~16%

◣⚡ :17~41%

◧⚡ :42~58%

◩⚡ :59~83%

◪⚡ :84~100%

Whenever you take a flash light reading with the instrument, the analyze scale is displayed on the LCD data panel. After a reading, you can also do a simulation to see how changes to the shutter speed affect the proportions of ambient light and flash light on the instrument.
The analyze scale shows the proportion of flash light in the total exposure reading as one of five levels.

Example of reading, display and simulation

Assume that a tungsten lamp is used as the ambient light source.
○Reading of F2.80 at a shutter speed of 1/60 sec.

Two quadrants are lit up on the display, indicating that the proportion of flash light is approx. 50% (ambient:flash ratio = 1:1).

A photograph taken under these conditions will not be strongly influenced by either the tungsten light (orange) or the flash light (white).

○Using the up/down control to change the shutter speed to 1/15, we can see how this change will affect the mix of ambient and flash light.

The aperture has changed to F4.03 and now, one quadrant is lit up. This indicates that the proportion of ambient light and flash light is about 3:1.

A photograph taken under these conditions will be influenced more strongly by the tungsten light (orange) and less strongly by the flash light (white).

On the other hand, increasing the shutter speed (within the range of sync) will have the opposite effect-photos will be more strongly influenced by flash light (white) than ambient light.

This simulation is based on controlling the ambient light by varying the shutter speed. The proportions of ambient light and flash light can also be adjusted by changing the intensity of the flash light.
The intensity of flash light can be controlled either by varying the distance between the subject and the flash, or by changing the power (light output) of the flash.
When you are controlling flash light intensity, you must take a new reading each time one of these two factors is changed.

Special Functions

Here we explain how to use the special functions of the instrument.

Memory function

Using the M button, you can store up to two measurement values in the meter.
The stored measurement values are displayed on the analog scale by pointers. As an example, you can use the meter's memory function to visually confirm the lighting ratio on the analog scale. This is a very handy feature for tuning lighting conditions. (See page 28.)
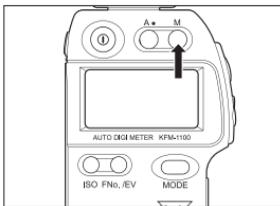
1 Press the M button after taking a reading.

● The measurement value is stored in memory. One pointer appears at the right of the analog scale to indicate that one value is stored in memory.
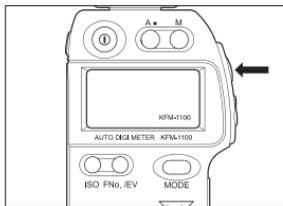
2 Take a second reading.

● The measurement value is displayed on the digital readout.
Now, the analog scale shows both the current reading, as displayed on the digital readout, as well as the measurement value stored in memory in step 1.
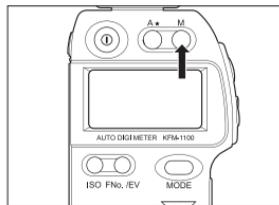
3 Press the M button to store the second measurement value in memory.

● The value is stored in memory. Now a second pointer appears at the right of the analog scale to indicate that two values are stored in memory.
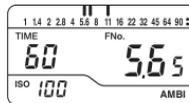
● Up to two values can be stored in memory at one time. If you now take a third reading, this value will also be displayed on the analog scale with the previous two values (two memory values and the latest measurement value).

● When there are two values already in memory, pressing the M button deletes the oldest of the two values, so that the two newest measurement values are stored in memory.

● If you change film speed or shutter speed after pressing the M button, the stored values are changed accordance to the new setting. (These changes are also reflected on the analog scale.)

● If there is no reading on the digital readout, or if the current reading is out of the meter's measurement range, pressing the M button does not have any effect.

● To delete all values from memory, turn the power off.

S/A/H (Shadow/Average/Highlight) calculations

Average exposure

This function calculates the average of two measurement values in memory. (This can be used with both incident-light readings and reflectedlight method.) For example, if there is a wide difference in brightness within a composition, the meter stores the readings of two points in memory and then calculates the average exposure value from these two values.

1 Take two readings of a subject (e.g. highlight and shadow area) and store the two measurement values in memory.
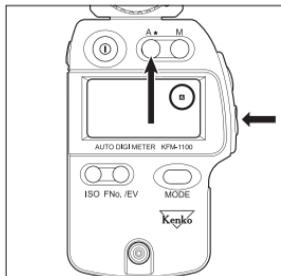
2 Use the up/down control while pressing the **A▣** button to set the meter to "A" mode.

●Attaching a receptor for incident-light readings automatically sets the meter to "A" mode. (In this case, the meter cannot be set to S or H mode.) Measurement values that are not stored in memory cannot be used in average exposure calculations.

●When you press the **A▣** button, the average value of the two memory values is displayed on the digital readout, and both the memory values and the average value will be displayed on the analog scale for FNo. If you press the **A▣** button again, the values will be erased from the display.

Display example

Apertures for measurements in memory

Number of values in memory

Aperture for averaged exposure
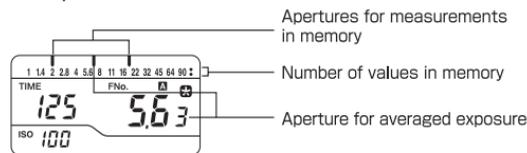
●If you press the **A▣** button when there are not two values stored in memory, the following will occur:

· If there is one value in memory.
A blinks and the value in memory is displayed.

· If there is no value in memory and the current measurement value is displayed on the digital readout:
A blinks and the measurement value is stored in memory and displayed.

· If there is no value in memory and no reading on the digital readout: Nothing changes.

●After you finish averaging, press the **A▣** button again to return to normal measuring mode. (The values in memory will remain unchanged.)

Shadow calculations (for reflected-light readings only)

When you want to reproduce some detail in the darkest areas of a composition (shadow areas) without blocking them out, take a reflectedlight reading of the shadow area and use the meter's shadow exposure calculation function to determine the appropriate exposure for the shot.

1 Take a reading of the shadow area of the subject.
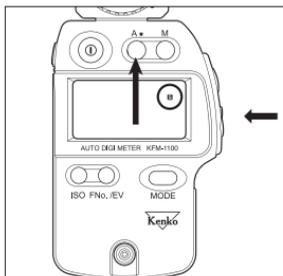
2 Use the up/down control while pressing the **A▪** button to set the meter to "S" mode.

● Unless an optional accessory for reflected-light readings attachment) is attached, it is not possible to set the meter to "S" mode.

◆ When you press the **A▪** button, the aperture required for proper exposure of the shadow area will be calculated, and the result will be displayed on the digital readout and on the analog scale for FNo. If you press the **A▪** button again, all values will be erased from the display.

● If there are any measurement values already stored in memory, the meter will determine the exposure for the darkest area measured and stored in memory. The meter can only make shadow exposure calculations with measurements stored in memory. If there are no measurements stored in memory, the meter determines the appropriate exposure based on the latest measurement (displayed reading).

● If you take photographs according to the aperture given by the shadow exposure calculation, the shadow areas will be accurately reproduced on film as shadows.

Display example

Apertures for measurements in memory

Aperture for shadow exposure

Aperture for shadow exposure

In the above example, the shadow exposure for the darkest measured area (aperture: F2.0+0.0) was determined.

Highlight calculations (for reflected-light readings only)

When you want to reproduce some detail in the brightest areas of a composition (highlight area), without washing them out, take a reflectedlight reading of the highlight area and use the meter's highlight exposure calculation function to determine the appropriate exposure.

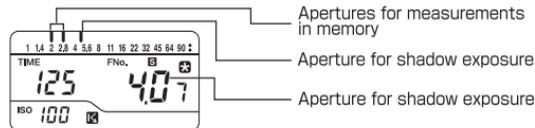**1** Take a reading of the highlight area of the subject.
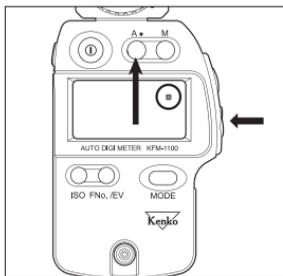
2 Use the up/down control while pressing the **A▪** button to set the meter to "H" mode.

● Unless an optional accessory for reflected-light readings (Spotfinder 5°, reflected-light attachment) is attached, it is not possible to set the meter to "H" mode.

◆ When you press the **A▪** button, the aperture required for proper exposure of the highlight area will be calculated, and the result will be displayed on the digital readout and on the analog scale for FNo. If you press the **A▪** button again, all values will be erased from the display.

● If there are any measurement values already stored in memory, the meter will determine the exposure for the brightest area measured and stored in memory. The meter can only make highlight exposure calculations with measurements stored in memory. If there are no measurements stored in memory, the meter determines the appropriate exposure based on the latest measurement (displayed reading).

● If you take photographs according to the aperture given by the highlight exposure calculation, the highlight areas will be accurately reproduced on film as highlights.

Display example

Aperture for highlight exposure
Apertures for measurements in memory
Aperture for highlight exposure
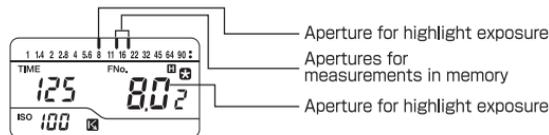
In the above example, the highlight exposure for the brightest area measured (aperture: F16+0.5 stops) was determined.

Brightness difference function

Concerning this instrument, pressing the **A◪** button after a normal measurement, or after performing an averaging calculation, fixes the current reading or calculated average as a reference value for difference calculations. Thus, when the next reading is made, the measurement value is displayed on the digital readout of the meter in terms of its difference relative to the fixed reference value or averaged reference value.
This function is useful for various photography or motion film situations. It allows you to quickly check the brightness differences between one part of a composition and another, (e.g. Foreground and background), or to measure the unevenness of illumination over a scene, by directly showing exposure differences between the current reading and a reference exposure value (previous measurement value or averaged reference value fixed using the **A◪** button).
This function can also be used for directly measuring the lighting ratio of a scene, by showing the exposure difference between the shadow and highlight areas of a composition, for highly precise lighting designs.

● The brightness difference function can be used in **AMBI** mode and **CORD** mode. Exposure differences cannot be displayed in **NON CORD** mode, even if you take readings.

● Displayable range of exposure differences is ±10.0Ev (0.1Ev steps).

Measuring Brightness Differences relative to an exposure reading

1 Take a reading and then press the **A◪** button.

Fixed measurement value
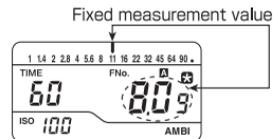
● **A◪** turns on to indicate the measurement value is fixed. (In this case, the fixed measurement value is F8.0+0.9-stops.)

2 Press the measuring button to take a reading of the area whose brightness you want to compare with the fixed value.

In **AMBI** mode

● Pressing the measuring button takes continuous readings. As each reading is taken, the exposure difference between the current measurement value and the fixed measurement value of step 1 is displayed. When you release the measuring button, the fixed reference value of step 1 is displayed.

In **CODE** mode

● Each time you press the measuring button, the flash is fired and a single exposure reading is taken. While the measuring button is pressed, the exposure difference between the current measurement value and the fixed measurement value of step 1 is displayed. When you release the measuring button, the fixed measurement value of step 1 is displayed again. (The data panel display is the same in **AMBI** mode.)

● If you press the **A◪** button, the display reverts to normal display mode. (The value measured in step 1 is stored in memory.)
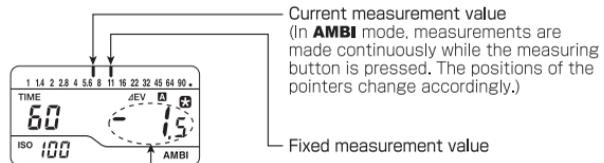
Current measurement value
(In **AMBI** mode, measurements are made continuously while the measuring button is pressed. The positions of the pointers change accordingly.)

Fixed measurement value

This shows that the currently measured area is 1.5 stops darker than the fixed measurement value.
(In **AMBI** mode, measurements are made continuously while the measuring button is pressed. The reading on the digital readout changes accordingly.)

When you release the measuring button:
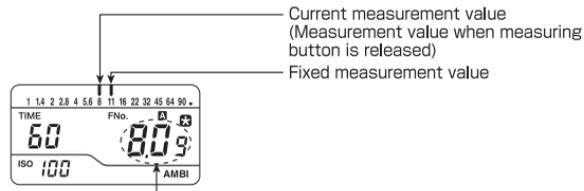
Current measurement value
(Measurement value when measuring button is released)

Fixed measurement value

The display reverts to the fixed measurement value.

Measuring brightness difference after an averaging calculation

1 Take two readings and store them in memory, then press the **A**▣ button.

Fixed average value
(average of F5.6 and F11)

● **A** turns on and the averaged value is displayed on the digital readout and fixed. (In this case, the fixed average value is F8.0+0.0-stops.)

2 Press the measuring button to take a reading of the area whose brightness you want to compare with the fixed value.

In **AMBI** mode

● Pressing the measuring button takes continuous readings. As each reading is taken, the exposure difference between the current measurement value and the fixed averaged value of step 1 is displayed. When you release the measuring button, the averaged reference value of step 1 is displayed.

In **CODE** mode

● Each time you press the measuring button, the flash is fired and a single exposure reading is taken. While the measuring button is pressed, the exposure difference between the current measurement value and the fixed averaged value of step 1 is displayed. When you release the measuring button, the fixed averaged value of step 1 is displayed again. (The data panel display is the same in **AMBI** mode.)
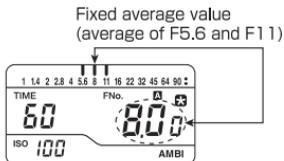
Fixed averaged value

Current measurement value
(In **AMBI** mode, measurements are made continuously while the measuring button is pressed. The positions of the pointers change accordingly.)

This shows that the currently measured area is 0.5 stops brighter than the fixed averaged value.
(In **AMBI** mode, measurements are made continuously while the measuring button is pressed. The reading on the digital readout changes accordingly.)

When you release the measuring button:

Current measurement value
(Measurement value when measuring button is released)

Fixed averaged value

The display reverts to the fixed averaged value.

Measuring lighting ratio using the Flat Diffuser

The lighting ratio is the brightness ratio between the highlight and shadow areas of a composition. For example, if the difference in measurement values (exposure difference) obtained by an incident-light reading is one stop, the lighting ratio is 2:1; if it's two stops, the ratio is 4:1. In general, lighting ratios from 4:1 to 8:1 (exposure difference of 2 to 3 stops) are considered best when using color films, since these ratios allow colors to be reproduced naturally.

By adjusting the lighting ratio, you can control the subject's highlight-to-shadow relationship or the relationship between the main subject and the background when photographing people or objects in a studio. To check lighting characteristics such as the brightness difference between a main subject and background, a Spherical Diffuser can be used in most cases. However if a subject is receiving light from different directions, it is necessary to measure the brightness of the individual light sources illuminating it, using a Flat Diffuser (optional accessory) (incident-light reading, see page).

This allows control over the shadow areas of the main subject. By replacing a Spherical Diffuser with a Flat Diffuser, the brightness of light sources illuminating a subject can be measured individually, and the lighting ratio can be checked easily. In addition, you can use the meter's memory function and brightness difference function to read these values easily.

Battery (p. 7)

↓

ISO speed (p. 8)
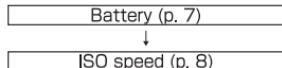
1 Attach a Flat Diffuser to the receptor of the instrument. See page 13 for details on how to attach a Flat Diffuser.

2 Prepare the meter for taking a reading.
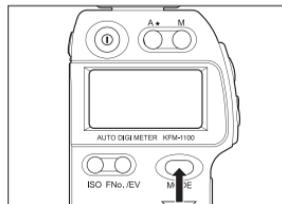
3 Set the measuring mode according to the light source to be measured.
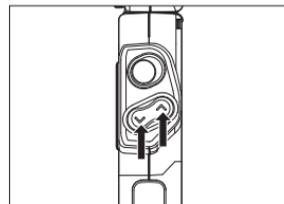
4 Use the up/down control to set the desired shutter speed.
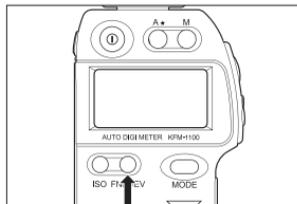
5 Set the display units to **FNo.**
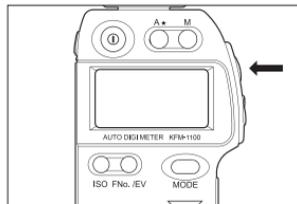
6 Position the meter by the subject, and take a reading with the Flat Diffuser facing towards the main (key) light source.
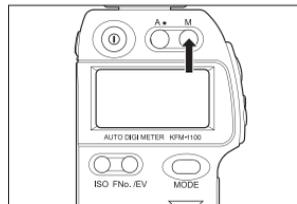
7 Press the M button to store the measurement value.
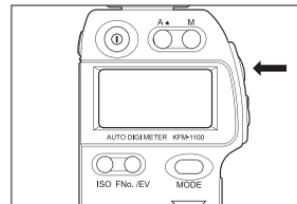
8 Next, position the meter by the subject and take a reading with the Flat Diffuser facing the fill light source. When taking this reading, block out all light from the main light source with your hands or other means, so that it does not directly fall on the Flat Diffuser, or if possible, turn off the main light source.

● The two pointers on the analog scale indicate the brightness of the main light source and the brightness of the fill light source.
● Read the difference in exposure of the two values.
● The reading accuracy of the analog scale is 0.5 stops.

Using the brightness difference function of the instrument, the lighting ratio can be read with an accuracy of 0.1 stops.

Alternatively, instead of storing the readings in memory, as explained in step 7 on the previous page, the following method can be used:

7 Press the **A▣** button. A is displayed on the data panel, and the exposure reading for the main light source is fixed.

8 Take a reading with the Flat Diffuser facing towards the fill light source. While holding down the measuring button, the difference (or lighting ratio) between the fill light source exposure and main light source exposure, which was fixed in step 7, is displayed directly on the digital readout. Read the value.

The lighting ratio of main light source to fill light source can be calculated from the following table.

Table for determining lighting ratio

Brightness differences (exposure differences)	Brightness ratio between main light source and fill light source (lighting ratio)
+1.0 (1 stop)	2:1
+2.0 (2 stops)	4:1
+3.0 (3 stops)	8:1
+4.0 (4 stops)	16:1
+5.0 (5 stops)	32:1
+6.0 (6 stops)	64:1
+7.0 (7 stops)	128:1

The formula for calculating the lighting ratio is:

$$\text{Main light:Fill light} = 2^{\text{Difference}} :1$$

"Difference" can be either brightness difference in ±EV or difference in stops between apertures.

Using as a simplified illuminance meter

Attach the Flat Diffuser (optional accessory), to the meter. Take a reading of ambient light in AMBI mode by holding the Flat Diffuser parallel to the surface you want to measure, then read the Ev value from the meter. Now, look up the approximate illuminance from the Ev-lx conversion table.

● ISO speed is set to ISO100 and display units are set to Ev.
● If the instrument has been recalibrated, set it back to the standard setting of 0 using Alt mode.

How to read the Ev-lx conversion table

The Ev-lx conversion table lists the integer component of Ev values vertically and the decimal fraction components of Ev values horizontally. For example, if the meter displays a reading of Ev 10.2, the row for the integer 10 and the column for the decimal 0.2 intersect at 2900 lx, the corresponding illuminance value.

● Ev-lx conversion table (with Flat Diffuser attached)

Decimal / Integeral	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-2	0.63	—	—	—	—	—	—	—	—	—
-1	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7
-0	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.5	1.4	1.3
+0	2.5	2.7	2.9	3.1	3.3	3.5	3.8	4.1	4.4	4.7
1	5.0	5.4	5.7	6.2	6.6	7.1	7.6	8.1	8.7	9.3
2	10	11	12	12	13	14	15	16	17	19
3	20	21	23	25	26	28	30	33	35	37
4	40	43	46	49	53	57	61	65	70	75
5	80	86	92	99	110	110	120	130	140	150
6	160	170	180	200	210	230	240	260	280	300
7	320	340	370	390	420	450	490	520	560	600
8	640	690	740	790	840	910	970	1000	1100	1200
9	1300	1400	1500	1600	1700	1800	1900	2100	2200	2400
10	2600	2700	2900	3200	3400	3600	3900	4200	4500	4800
11	5100	5500	5900	6300	6800	7200	7800	8300	8900	10000
12	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000
13	21000	22000	24000	25000	27000	29000	31000	33000	36000	38000
14	41000	44000	47000	50000	54000	58000	62000	67000	71000	76000
15	82000	88000	94000	100000	110000	120000	120000	130000	140000	150000
16	160000	180000	190000	200000	220000	230000	250000	270000	290000	310000
17	330000	350000	380000	400000	430000	460000	500000	530000	570000	610000
18	660000	700000	750000	810000	860000	930000	990000	1100000	1100000	1200000

Custom settings mode (Alt mode)

Alt mode

To adjust the instrument's operation settings to your preferences, set the meter to Alt mode by pressing the POWER button while holding down either the ISO button, display-selector button, MODE button, or measuring button. Once in Alt mode, you can switch setting modes by using the ISO button, display-selector button, MODE button or measuring button, and you can change setting values using the up/down control.
After specifying your desired value, confirm the setting by turning the power off and then on.

| Setting item	Operation	Setting & selection values	Initial value
Exposure correction value	Measuring button + power on	−10.0～+10.0	0
Shutter speed increments	ISO button + power on	1, 1/2, 1/3	1
FNo. display	FNo./Ev button + power on	00.00□	00□
TIME/CINE setting	MODE button + power on	TIME, CINE	TIME

1) Exposure correction value

This sets the exposure correction value. The set value is displayed when you turn the power on.
You can adjust this setting to recalibrate the meter to your choice of exposure values, or when you want to calibration more than one exposure meter to the same exposure range.

1 Turn the power on while pressing the measuring button, or press the measuring button in Alt mode.

◆Alt is displayed bottom left and ⊿Ev0.0 is displayed.
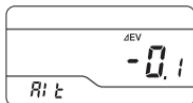
2 Use the up/down control to set the correction value.

◆Display changes in increments of 0.1Ev. You can set the value up to ±10.0Ev.

2) Shutter speed increments

Choose between increments of 1/2-stop, 1/3-stop and 1-stop, according to the shutter speed settings your camera.

1 Turn the power on while pressing the ISO button, or press the ISO button in Alt mode.

2 Use the up/down control to set the step value.

◆Choose from values of 1.0 (1), 0.5 (1/2) and 0.3 (1/3).to ±10.0Ev.

3) FNo. display

Specifies FNo. display

00□ display

Displays intermediate readings between f-numbers as FNo. + 1/10 stops

00 display

For quickly reading values between f-numbers (e.g F3.5, F4.5)

1 Turn the power on while pressing the displayselector button, or press the display-selector button in Alt mode.

2 Use the up/down control to select FNo. display.

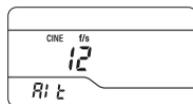◆Choose your preferred display method from the two options above.

4) TIME/CINE setting

Switches between shutter speed and framing-rate in AMBI mode Note that it is not possible to switch to another measuring mode (CORD or NON CORD) while the framing-rate setting is active.

TIME display

CINE display

1 Turn the power on while pressing the MODE button, or press the MODE button while in Alt mode.

2 Use the up/down control to set the shutter-speed or framing-rate value you desire.

Reference: How to reset to initial settings

You can reset various settings changed in custom setting mode to their initial values (default factory settings).
1. Turn the power on.
2. Hold down the POWER button for approx. 2 sec. while pressing the M button.
    ◆Power turns off and custom settings are reset to their initial values.

Care and Storage

Care

1) If the meter gets dirty, it can be wiped with a soft, dry cloth. Do not use solvents such as thinners or benzene at all.

2) If the Spherical Diffuser becomes stained, remove it from the meter, wash the diffuser carefully in water with a mild detergent, and rinse and dry the diffuser thoroughly before reattaching it to the meter.

3) Never attempt to disassemble the meter if it becomes damaged or faulty. Please contact the nearest authorized service facility for repair.

Storage

1) The instrument should not be stored in areas where it may be subject to temperatures higher than 55°C (131°F) or lower than -20°C (-4°F), or in areas subject to high humidity. It is recommended that the instrument be stored in an airtight container together with a drying agent such as silica gel.

2) Do not leave the instrument in places such as the rear window or trunk of a car, otherwise it will get extremely hot, resulting in damage.

3) Remove the battery whenever the instrument is left unused for more than 2 weeks, to avoid the risk of damage due to battery leakage.

Handling Instructions

1) Do not remove the cap from the jack cap.

2) If the jack is touched while measurements are being taken, static electricity or induction may result in faulty measurements.

3) If the meter is used in the rain, at the seashore, or near a volcano, it may become rusty or corroded due to water or corrosive gas. In such situations, be careful to protect the meter as much as possible.

4) Do not subject the instrument to shock or vibration. For protection, store the instrument in its case when carrying it.

5) Do not allow the diffuser to become scratched or stained.

6) Do not press on or damage the data panel.

7) Avoid using the instrument under the following temperature conditions, since it is composed of precision electronic parts such as LSIs and LCD elements.

   A) Do not use the instrument in areas subject to temperatures higher than 50°C (122°F) or lower than -10°C (14°F).

   B) When the temperature of the instrument falls below -10°C (14°F), the display response becomes very slow and the display may become very difficult to read.
   * At temperatures between 0° (32°F) and -10°C (14°F), the display response is relatively slow, but there is no risk to the instrument in such environments

   C) When the temperature of the instrument rises above 50°C (122°F), the display may become very difficult to read and the data panel will turn black.
   * If the instrument is left under direct sunlight in the summer or near a heater, the temperature of the instrument may get much hotter than the surroundings. So avoid this situation.

> This instrument contains a microprocessor. If it is affected by electromagnetic interference or other influences, it may fail to function properly. If this happens, remove the battery and replace it.

After Service

Parts for repair of this product shall be available for at least seven years from the time of purchase.

Specifications

Type	Hand-held exposure meter for measuring ambient and flash light
Reception method	Incident-light and reflected-light readings
Receptors	* optional accessory.
	<u>Incident</u>: Spherical Diffuser, Flat Diffuser*
	<u>Reflected</u>: Spotfinder 5° (angle 5°)*
	Reflected-light attachment (angle 40°)*
	<u>External receptor</u>: Mini Receptor*
	• Light-reception speed automatic switching function for incident-light and reflected-light readings
	• 270° rotating receptor head
Receptor element	Silicon photocell
Measuring modes	<u>AMBI</u>: Ambient light
	<u>CORD</u>: Flash light and flash bulb light using a sync cord
	<u>NON CORD</u>: Flash light without a sync cord
Measuring range (ISO100)	<u>Ambient light</u> Incident: Ev-2.0 to 19.9
	Reflected-light attachment: Ev2.5 to 24.4
	Spotfinder 5° : Ev2.5 to 24.4
	<u>Flash light</u> Incident-light readings: FNO. 1.0 to 90+0.9 stop
	Reflected-light attachment: FNO. 1.0 to 90+0.9 stop
	Spotfinder 5°: FNO. 1.0 to 90+0.9 stop
Display range	<u>ISO</u> : 3 to 8000 (1/3 stop increments)
	<u>Shutter speed (ambient)</u> : 30 min. to 1/8000 sec. (1, 1/2, 1/3 stop increments)
	<u>Shutter speed (flash)</u> : 1 sec. to 1/500 sec. (1, 1/2, 1/3 stop increments)
	<u>Framing-rate</u> : 8 to 128 f/s
	<u>Exposure</u> : F1.0 to 90+0.9 stop (0.1 stop increments)
	<u>Ev</u> : -17 to 40.8 (0.1 stop increments)
	<u>Exposure difference</u> : -10 to +10 (0.1 stop increments)
	<u>Analog scale</u> : FNO. 1.0 to 90 (1/2 stop increments)
	<u>Analyze scale</u> : Flash light proportion 0 to 100% (25% increments)

Repeatability	± 0.1 stop
Calibration coefficient	Incident: C=330 (Spherical Diffuser), C=250 (Flat Diffuser)
	Reflected: K=14
Other functions	Memory, S/A/H calculation, brightness difference Analyze function for calculating ratio of flash light to ambient light
Power	One AA alkaline dry cell (LR-6/1.5 V)
Battery life	Approx. 50 hours: continuous reading in AMBI mode using alkaline dry cells
Operation temperature and relative humidity range	-10°C to 50°C (14°F to 122°F) Relative humidity 85% max. [at 35°C (95°F)], no condensation
Storage temperature range	-20°C to 55°C (-4°F to 131°F) Relative humidity 85% max. [at 35°C (95°F)], no condensation
Others	Display correction function -10.0 to +10.0Ev Sync terminal
Dimensions	57 (W) x 157 (H) x 26 (D) mm
Weight	135 g
Standard accessories	Spherical Diffuser, neck strap, case
*Optional accessories	Spotfinder 5°, reflected-light attachment

● Specifications and external appearances described herein are subject to change without notice.
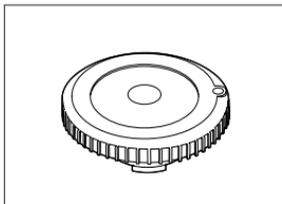
Accessories

Flat Diffuser
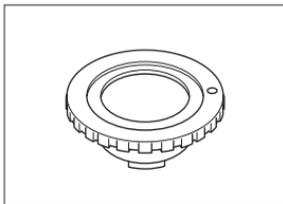
With this diffuser attached, the AUTO DIGI METER KFM-100 can be used tomeasure lighting contrast (ratio of brightness) and exposure for flat subjects.
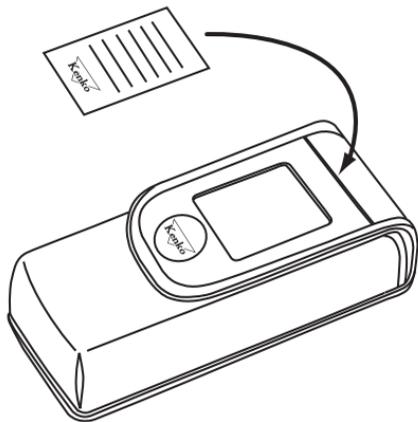
Reflected-Light Attachment

This is a receptor for use in reflected-light readings. With an angle of acceptance of approximately 40° , this attachment is used for making reflected-light readings corresponding to the field of view of most normal lenses.

Spotfinder 5°
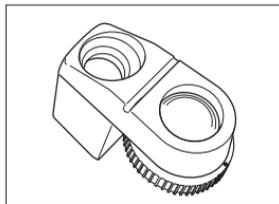
This is a reflected-light receptor with a 5° angle of acceptance. By attaching this to the AUTO DIGI METER KFM-100 instead of a Spherical Diffuser, the meter can perform spot measurements. A close-range correction index is employed for measurements of subjects at distances of around 1m.