

FLASH UNIT  
**PE-5650**

# Operating Instructions

English, Deutsch, Français, Español



 **National**

Please read these instructions carefully before using the Flash Unit.

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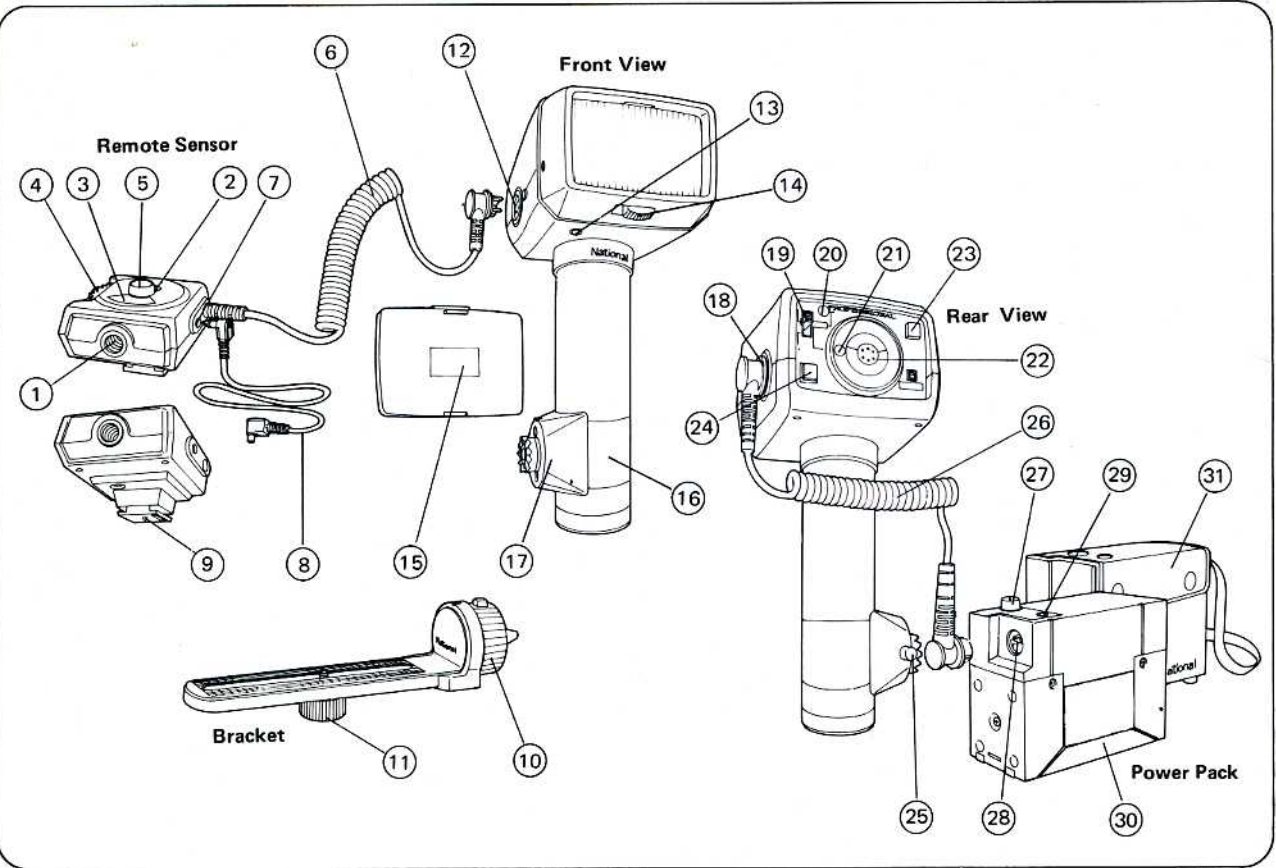
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**Dear Camera Owner,**

In choosing this Flash Unit, you are now one of our growing family of satisfied National Flash Unit users throughout the world. We can assure you that having selected our unit you will gain complete satisfaction in its usefulness as an aid to your photographic achievements. We strongly advise you to refer to the following instructions before using the Flash Unit to ensure obtaining satisfactory picture quality.

**PARTS IDENTIFICATION:**

**Remote sensor (PW-10S)**

1. Light sensing window
2. Film speed scale
3. Aperture (F-stop) scale
4. Film speed selection dial
5. Aperture (F-stop) selecting knob
6. Sensor cord
7. Synchro-cord socket
8. Sensor synchro-cord
9. Mounting shoe

**Bracket**

10. Clamp lock lever
11. Camera set screw

**Main Body: Front view**

12. Sensor cord socket
13. Synchro-cord socket (socket for optional synchro-cord)
14. Wide-angle diffuser lock
15. Wide-angle diffuser
16. Clamp band
17. Clamp

**Main Body: Rear view**

18. Power cord socket
19. Auto/Manual selection switch
20. Auto-set pilot lamp
21. Auto-working pilot lamp
22. Exposure dial
23. Pilot lamp
24. Open flash button
25. Clamp lock button
26. Power cord

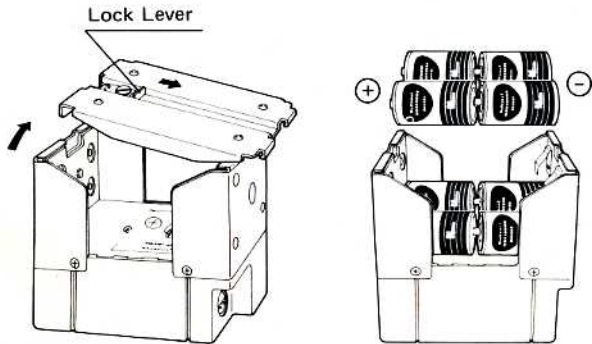
**Power pack (PW-201)**

27. Power switch
28. Power cord socket
29. Monitoring pilot lamp
30. Battery compartment lid
31. Carrying case

## Preparing the Flash Unit to use:

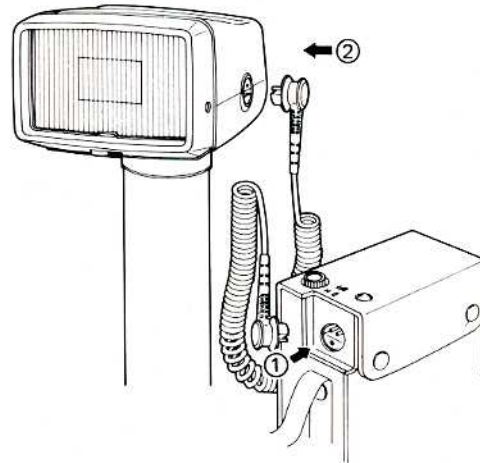
### ○ Installation of Batteries:

1. Apply finger pressure to the lock lever on the battery housing lid, in the direction of ARROW, to remove lid.
2. Insert eight R20 type (D Size) 1.5v. dry batteries (or equivalent) taking care they are positioned correctly, to + and - markings as shown on side of housing and battery. If wrongly located in housing, leakage or damage could result to the flash unit.
  - \* Do not loosen lock lever screw.
  - \* Remove all old batteries, when replacing with new batteries.
  - \* It is advisable to remove batteries when the flash unit is not to be used for long periods. Otherwise corrosion or battery leaks will occur.



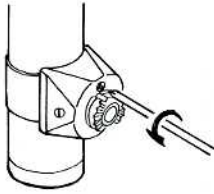
### ○ Connection of Power Source

Before connecting power cord to the power pack socket ① and flash unit socket ② set power switch on power pack to "OFF" position. CHECK that pilot is out.

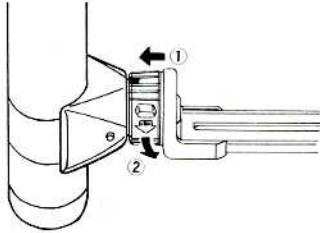


○ **Attachment of Bracket**

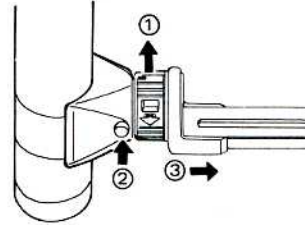
1. To set the clamp in the desired position, release the clamp set screw with screwdriver, make the adjustment, and then retighten screw.



2. Always make sure to align white mark on clamp with white mark on the clamp lock lever ratchet. Secure bracket by rotating clamp lock lever in the direction of ARROW ② at the same time pushing bracket toward ARROW ①.



- Note:
- \* To remove bracket, loosen lock lever in ARROW direction ①, remove bracket ③ and at the same time depress lock button ②.
  - \* When requiring bounced lighting effects, momentarily loosen lock lever, turn flash unit to the required angle and retighten lock lever.
  - \* The clamp swivels 360° and provides good bounced lighting results.

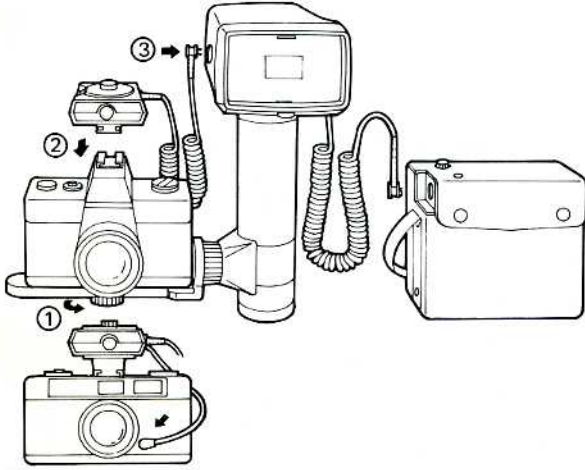




○ **Position Flash Unit to your Camera:**

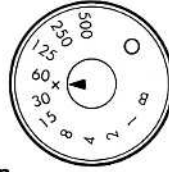
1. Secure flash unit firmly to the camera, using the camera set screw.
2. Connect the remote sensor unit to the camera hot shoe.
3. Plug the remote sensor cord into the flash unit sensor cord socket.

Note: Should the camera not be fitted with a hot shoe location, connect one end of the sensor synchro-cord to the synchro-cord socket of the remote sensor, and the other end to the "X" contact of the camera.



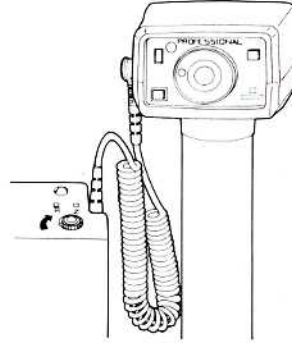
**Shutter speeds**

1. On focal plane shutter cameras, use the "X" contact or shutter speeds slower than 1/30 sec. (Refer to your camera instruction manual.)
2. On lens shutter cameras, the flash unit is perfectly synchronized to all shutter speeds slower than 1/250 sec.



**Flash preparation**

Turn the power switch "ON" and check if the MONITORING pilot lamp lights up. With the pilot lamp "ON" the flash unit is now ready for operating.

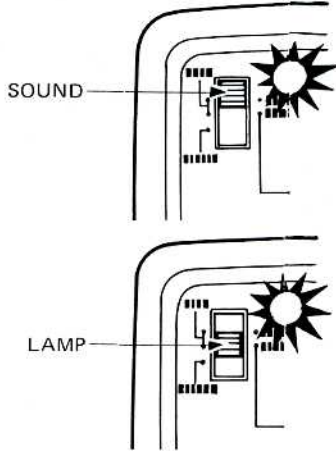


## Photography

### Operating flash automatically

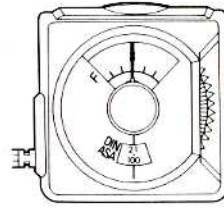
1. Connect remote sensor to flash unit.
2. Set the auto/manual switch to "AUTO".  
Note: When the flash unit is set on "AUTO" it has two functions; for normal action it transmits a sound "Ding", or for silent shots a lighted lamp signal.
3. When set to "AUTO" (SOUND or LAMP) the auto-set lamp blinks "ON" and "OFF" continuously showing the flash unit is in automatic circuit system.

\* Be sure to confirm the pilot lamp lights before you shoot.



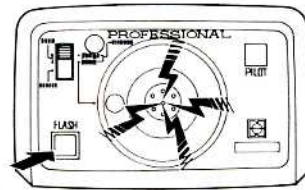
### Aperture setting

1. Set film speed (ASA/DIN) dial on remote sensor to the sensitivity of the film being used.
2. The aperture dial of the remote sensor allows for non-step aperture setting within a certain range. Set it to the aperture as the camera.



### To test flash operation before photographing

1. Set to automatic (See previous instructions), set to "SOUND", UPPER position on switch, press open flash button and listen for audible "DING" signal tone.

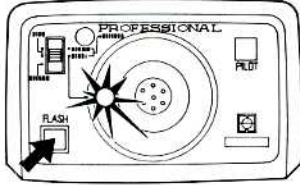




2. For silent flash operation set to light signal, lower position on switch, and press open flash button. When auto-working pilot lamp lights up flash is ready for repeat operations.

Note: Should "Sound" signal or "Silent" light signal not function, check and reset remote sensor and camera aperture settings.

The "SOUND" setting is suitable where noise is not an inconvenience. The light signal is for use when taking photographs at concert halls, weddings, speeches, etc. and "silence" is preferred.



Automatic Operation Range (approx.)

With ASA 100 (DIN 21) film

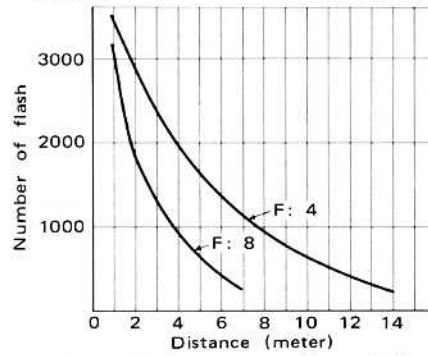
F4	1 to 14 meters (wide: 0.7 to 10 meters)
F5.6	1 to 10 meters (wide: 0.7 to 7.1 meters)
F8	1 to 7 meters (wide: 0.7 to 5 meters)
F11	1 to 5.1 meters (wide: 0.7 to 3.6 meters)
F16	1 to 3.5 meters (wide: 0.7 to 2.5 meters)

Wide: with wide-angle diffuser.

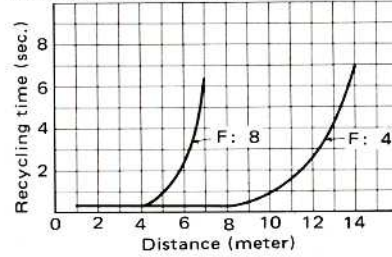
**Cautions on automatic photography**

In case the subject's background is too bright or dark, accurate exposure readings may not be obtained. Correct exposure by adjusting the camera aperture accordingly.

Relationship between number of flash and distance.  
Battery: Alkaline batteries (National AM-1)

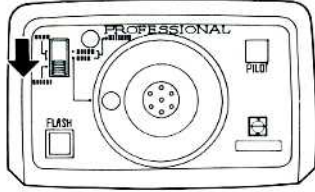


Relationship between recycling and distance  
Battery: Alkaline batteries (National AM-1)



**Manual photography**

Connect the flash unit to the camera by using the remote sensor and sensor synchro-cord. Unless using the remote sensor, use optional 1-meter coiled cord or 3-meter straight cord. Set the auto/manual selection switch to "MANUAL".



**Aperture setting**

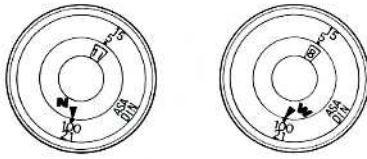
Use the exposure dial on the rear side of the flash head for manual photography. Set the film speed to the "N" arrow (▼) (Normal: without wide-angle diffuser) or to the "W" arrow (▼) (Wide: with wide-angle diffuser).

Example: Without wide-angle diffuser

When the film speed is ASA 100 and distance is 5 meters, the F-stop is 11. Set the camera aperture accordingly.

Example: with wide-angle diffuser

When the film speed is ASA 100 and distance is 5 meters, the F-stop is 8. Set the camera aperture accordingly.



Finding proper F-stop using guide number:

$$F\text{-stop} = \frac{\text{Guide number}}{\text{Distance(m)}}$$

Guide number table according to film speed

ASA	25	50	64	80	100	200	400
Normal	28	40	45	50	56	79	112
Wide	20	28	32	36	40	57	80

Example: When the film speed is ASA 100 and distance is 5 meters.

Without wide-angle diffuser

$$\frac{\text{Guide number}}{\text{Distance}} = \frac{56}{5} \approx 11$$

The F-stop is 11.

With wide-angle diffuser

$$\frac{\text{Guide number}}{\text{Distance}} = \frac{40}{5} = 8$$

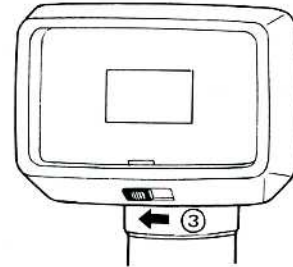
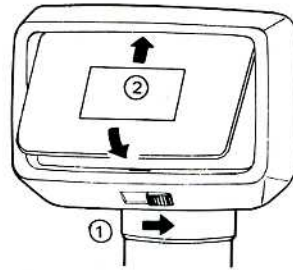
The F-stop is 8.

### Photography with wide-angle diffuser

- Attaching wide-angle diffuser
  1. Slide the wide-angle diffuser lock to right. ①
  2. Push in the diffuser with its plane face on the outside and the convex portion up. ②
  3. Slide the lock to left and fix the diffuser. ③

### Notes

- (1) If ambient temperature is extremely high— $40^{\circ}\text{C}$ ( $104^{\circ}\text{F}$ ) or low—below  $-10^{\circ}\text{C}$ ( $14^{\circ}\text{F}$ ), do not use the flash unit or the mechanism may be damaged. Avoid exposing the flash unit to direct sunshine.
- (2) When the unit becomes dirty, wipe with cloth and neutral detergent. (Never use a solvent such as benzine or thinners for this purpose.)
- (3) If the unit is not functioning properly, turn switch off and take the unit to your camera dealer.



## Specifications

Guide Number	56 (wide 40) ASA 100 (DIN 21) colour/m 40 (wide 28) ASA 50 (DIN 18) colour/m 92 (wide 66) ASA 25 (DIN 15) colour/ft	Number of Flashes	250 to 3500 approx. with alkaline manganese batteries (National AM-1 or equivalent) 70 to 700 approx. with manganese batteries (National UM-1D or equivalent) 70 to 700 approx. with National nickel-cadmium battery pack
Flash Duration	Automatic: 1/30,000 to 1/300 sec. approx. Manual: 1/300 sec. approx.	Power Supply	1.5V R20 (D size) dry battery x 8 Nickel-cadmium battery pack
Automatic Operation Range (approx.)	With ASA 100 (DIN 21) film F4 1 to 14 meters (wide: 0.7 to 10 meters) F5.6 1 to 10 meters (wide: 0.7 to 7.1 meters) F8 1 to 7 meters (wide: 0.7 to 5 meters) F11 1 to 5.1 meters (wide: 0.7 to 3.6 meters) F16 1 to 3.5 meters (wide: 0.7 to 2.5 meters)	Colour Temperature	Ideal for colour and black & white film
Aperture for Automatic Operation	Freely adjustable F-stop selector dial (1) From F4 to F16, ASA 100 (DIN 21) (2) From F2.8 to F11, ASA 50 (DIN 18)	Dimensions	Flash unit: 277(H) x 116(W) x 110(D) mm Power unit: 128(H) x 238(W) x 70(D) mm
Sensor Measuring Angle	20° approx.	Weight	1,200g (flash unit with bracket and clamp) 690g (power unit without batteries)
Recycling Time	0.3 to 7 sec. approx. with alkaline manganese batteries (National AM-1 or equivalent) 0.3 to 13 sec. approx. with manganese batteries (National UM-1D or equivalent) 0.3 to 5 sec. approx. with nickel-cadmium battery pack	Accessories	Included: Power pack <PW-201> (without battery) (for 1.5V R20 (D size) dry battery x 8) Power supply cord Remote sensor <PW-10S> Remote sensor synchro-cord Bracket & clamp with 360° vertical swivel Wide angle diffuser  Optional: Nickel-cadmium battery pack <PP-ZN/P3> Charger-1 <PW-102> Bracket for twin lens camera, 6x6 single lens reflex camera, etc. Synchro-cord for manual operation or slave unit (1 meter coiled cord or 3 meter straight cord)
Angle of Coverage	Normal: 45° vertical, 65° horizontal Wide: 55° vertical, 70° horizontal		

Lieber Kamerabesitzer, wir begrüßen Sie in der großen Familie der National-Blitzgeräte-Freunde. Wir hoffen, daß dieses National Blitzgerät lange Zeit Ihr Begleiter sein wird und die Qualität der damit hergestellten Aufnahmen Ihren Wünschen voll entspricht. Bitte lesen Sie vor Gebrauch diese Bedienungsanleitung sorgfältig durch.

## TEILE-BEZEICHNUNG

### Externer Sensor

1. Mess-Auge
2. Filmempfindlichkeits-Skala
3. Blenden-Skala
4. Einstellring für Filmempfindlichkeit
5. Blendenwahl-Regler
6. Verbindungskabel zum Lampenstab
7. Anschluß für Synchron-Kabel
8. Synchron-Kabel
9. Aufsteckschuh mit Mitten-Kontakt

### Kameraschiene

10. Schnellverriegelung
11. Kamera-Befestigungsschraube

### Frontansicht

12. Steckdose für Sensor-Kabel
13. Anschluß für Synchron-Kabel
14. Verriegelung für Weitwinkelscheibe
15. Weitwinkel-Streuscheibe
16. Metallband für Lampenstabhalterung
17. Anschlußstück für Kameraschiene

### Rückansicht

18. Steckdose für Stromkabel
19. Schalter für automatischen und manuellen Betrieb
20. Kontroll-Lampe für Automatik-Betrieb
21. Optische Blitzselbstkontrolle
22. Rechenscheibe für Filmempfindlichkeit, Blende und Entfernung
23. Ladekontroll-Lampe
24. Blitzauslöseknopf
25. Schnellentriegelungs-Druckknopf
26. Stromkabel

### Kraftzentrale

27. Ein- und Ausschalter
28. Steckdose für Verbindungskabel zum Lampenstab
29. Kontroll-Lampe
30. Akku bzw. Batterieaufnahme
31. Ledertragetasche

