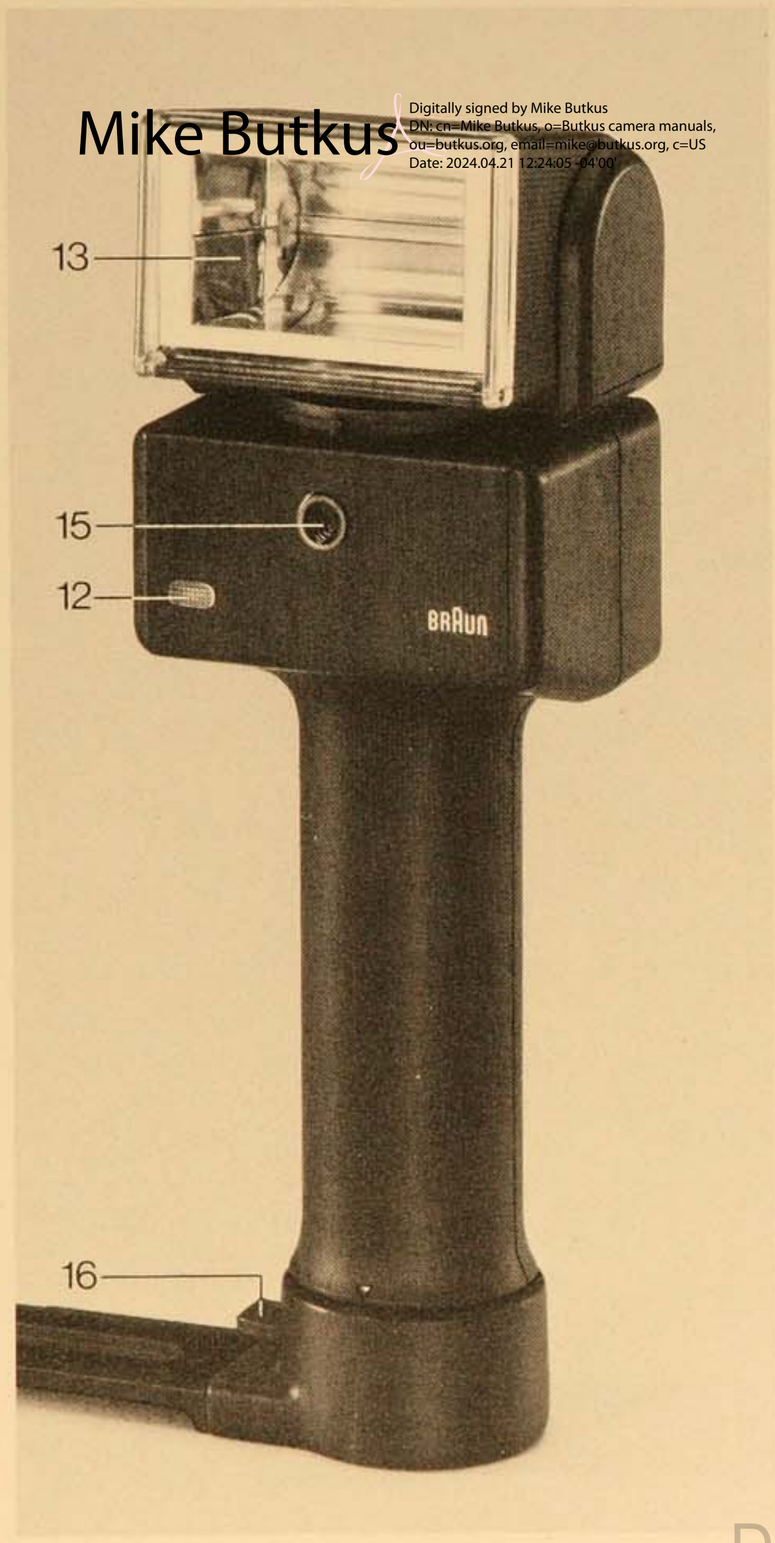
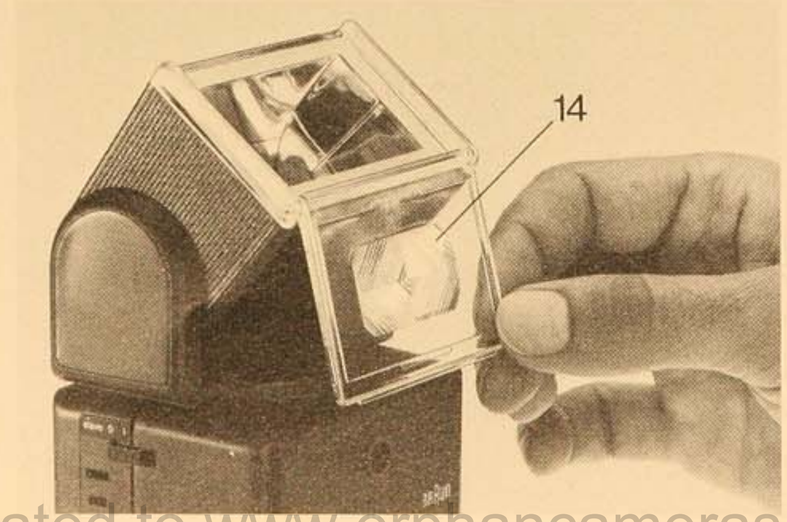
Braun 2000

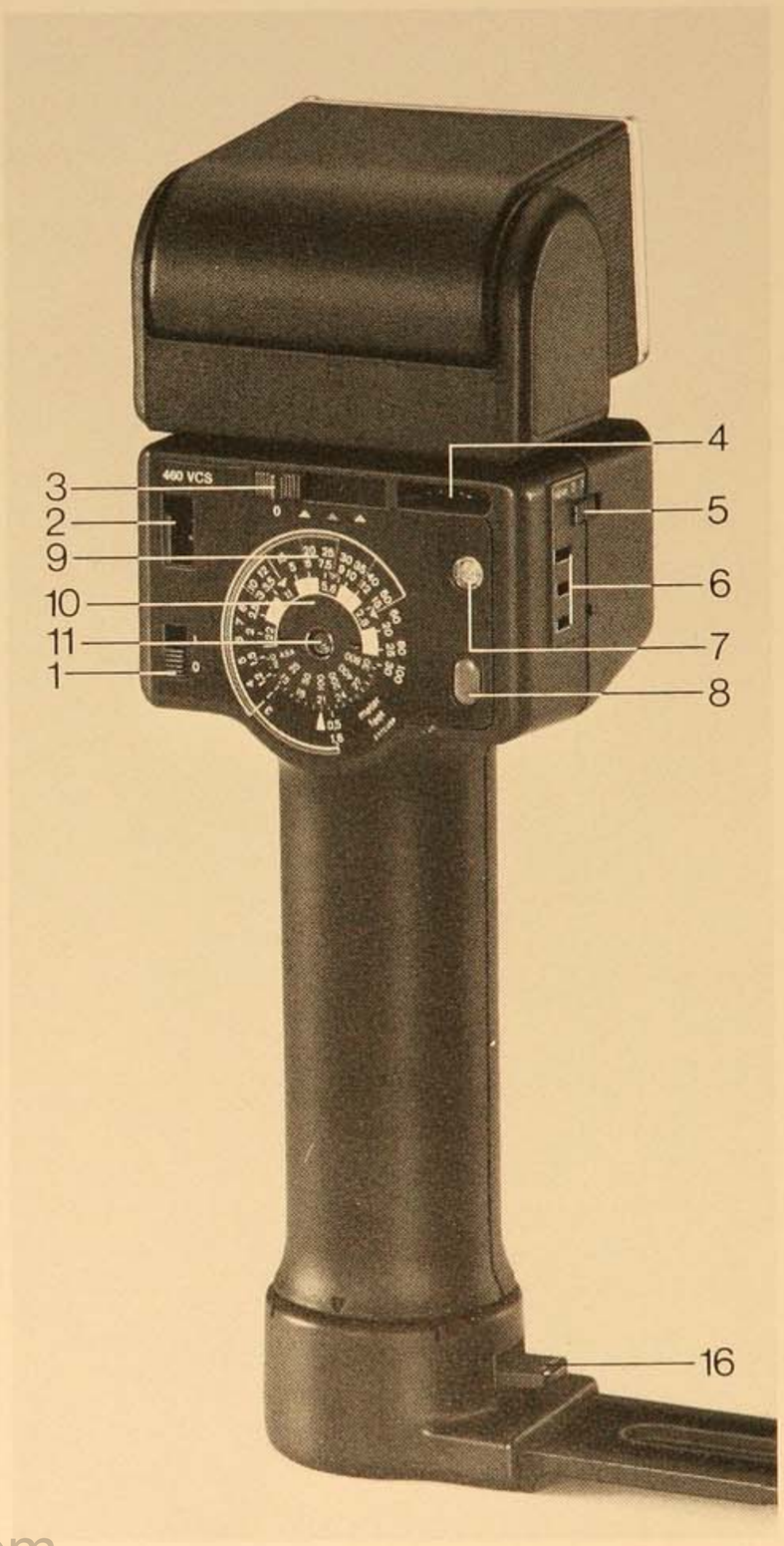
VarioComputer

380 BVC
460 VCS

BRAUN







English

With the introduction of the Braun 2000 flash series, Braun set new dimensions in the developement of electronic flash units which are still valid today. The new models «380 BVC» and «460 VCS» offer further advantages.

In addition to the VarioComputer automatic light control, with its energy saving thyristor circuit and computer check indicator, it offers the new vario reflector with wide-angle screen which can be swivelled in all directions additional flexability of the built-in slave unit, the external sensor, and high performance specifications.

The advantages

The VarioComputer
Automatically provides correct exposures within the computer control range, regardless of the distance between the flash unit and the subject. This means that the selected aperture on the camera does not need to be changed in order to adjust for various distances. The sensor cell on the front of the flash unit measures the amount of light reflected from the subject, and compares it with the amount needed. When this is attained the flash unit switches itself off. This results in fully automatic light control by reducing the duration of the flash.
In conventional computer flash units the remaining energy is lost for the next flash; it remains stored with the VarioComputer. The result is that the flash unit recyles much faster, and the number of flashes is increased significantly. According to the distance between the subject and the flash, the recycling time is reduced to as brief as 0.3 seconds and the number of flashes is increased to as many as 1800 for the 460 VCS, and 2800 for the 380 BVC.

The Vario Reflector
The new vario reflector can be swivelled up to 120° upwards and as much as 174° to each side; this provides flexibility for bounce soft lighting, for both vertical and horizontal pictures. The additional built-in wide angle screen completes the universal of the vario reflector on your Braun 2000 flash.

Slave Operation
These units are equipped with a slave unit and may be triggered for remote operation by another flash unit without the need for connecting wires.
The use of the external sensor Vario-Control 2000» (available as an optional accessory) considerably increases the possible applications of your Braun 2000 flash. This unit carries out all measuring and control functions of the Vario-Computer from the camera, when the flash is used away from the camera.
In addition, eight working apertures can now be used with the flash unit instead of normally three.

Operation

Instructions for use
In order to be able to fully utilize the potential of your flash unit, you should read these operating instructions carefully. Please fold out the insert pages to the left and the right and learn all about your Braun 2000 flash. Externally the units 380 BVC and 460 VCS are almost identical. Any differences which exist are noted.

1 On/off switch
This is used to switch the unit on (red mark visible). A humming noise indicates that the unit is working.

2 (Only for 460 VCS)
Socket for the charging unit FR 460 S (17).

3 Computer programing switch
On the Braun 2000 flash you can select one of three computer apertures, for example: f.4, f.8, f.16, with

a film speed of ASA 100 (also see point 10). In position «0» the computer is switched off and is in the manual operation mode.

4 Socket for Braun VarioControl 2000.
This accessory expands the scope of the Braun 2000 flash considerably. When the VarioControl 2000 is connected, the computer in the flash unit is automatically switched off and the sensor in the Braun VarioControl 2000 controls automatic exposure functions.

5 Slave unit Off/On Switch
When the slave unit switch is in the ON position, this unit will flash when the light from any other flash unit enters the photo cell window (12).

6 Synchronizing cord socket
This cord is used to connect the Braun 2000 flash to the X contact of your camera. Synchronizing cords of different lengths are available from your dealer.

7 Ready Light
The unit is ready to use when the ready light is on. After each flash, wait for the ready light to come on before taking another picture. Failure to do so will result in either an underexposed photograph, or no flash at all.

8 Manual Operation Trigger
Fore use when firing a test flash for the computer test signal and for use as descrived in «Manual Flash Operation» section.

9 Computer Operation Distances Scales
The colored lines on the calculator dial indicate the near and far distances for each of the three computer controlled automatic exposure options. The color of the lines relates to the colors of the computer programing switch (3).

10 Aperture Scale
One set of numbers on the innermost of scale of the calculator dial refers to the ASA rating of the film being used (The ASA rating of the film is generally given on the film package, or the instruction sheet included with the film). ASA numbers are used with films manufactured in North America, DIN is the European numbering system. The other set of numbers refer to the aperture (f stop) settings of the camera. After setting the white arrow mark to the ASA rating of the film being used, the colored arrows will point to the apertures which may be selected for setting on the camera.

11 Computer Check Signal
The computer check signal is the green light in the center of the computer. It lights *briefly* after every flash *only* if there is sufficient light for a correct exposure for the computer switch color setting you have selected. If the light computer check signal does not come on even when the Computer Programing Switch (3) is set on the green mark, you may assume that your photograph will not be properly exposed. This step is particularly important when using bounce flash. A test flash is made by using the manual release buttom (8). If the computer check signal does not light you may do one of the following: move closer to the subject, select the red operating range instead of yellow the green operating range instead of red, or switch to the «0» mark on the computer programing switch (3) and refer to the calculator dial for the correct aperture (f stop) at the distance the subject is from the camera.

12 Photocell of the slave unit

13 Vario Reflector
This can be swivelled upwards up to 120° for bounce flash, (it has a click stop at 90°) and can be swung 174° to

the left or to the right, (with click stops at 90°).

14 Wide-angle screen
Is located below the reflector and is simply swivelled in front of the reflector disc for use.
It has an audible click stop.

15 Sensor
In automatic operation the sensor measures amount of light reflected from the subject and turns off the light from the flash when the amount of light produced by the flash is sufficient for a correct exposure.

16 Rapid release button.
For detaching the flash unit from the camera bracket.

17 Battery Compartment Cover
for use with 380 BVC only.
To open, turn the slotted screw anticlockwise, if necessary use the edge of a coin.

18 Charging unit FR 460 S
for use with 460 VCS only.
With this unit you can charge the batteries of your flash unit in only one hour. To do this, connect it with the

19 AC Cord
The AC Cord plugs into a regular household electrical outlet.

20 Charging cable
plug into socket (2) on the flash unit.

21 Charging Indicator Lamp
This is lit only during the one hour rapid charging process. When the flash unit is fully charged, the lamp goes off and the charger reduces the current to a trickle charge. The unit may be left plugged into the charger permanently.

Preparation for use

Power supplies
«460 VCS»:
Charge your Braun 2000 flash before using it for the first time in order to ensure maximum efficiency (see the section «Charging the batteries»).

«380 BVC»:
This flash unit requires 4, AA batteries 1.5 V (we recommend the use of alkali manganese batteries).
You may, however also use re-chargeable nickle cadmium cells (approx. 1.2 V) of the same size (see technical data).
Suitable charging units are commercially available. Open the battery compartment by loosening the screw, (17), with the edge of a coin if necessary.

Connections
Mounting on the camera
The camera bracket can be attached to your camera's tripod socket with the camera screw, for use either on the left or right side of the camera. Then place the Braun 2000 flash in the bayonet socket of the bracket and it turn approximately 45° until it clicks into its fixed position. You can release it by depressing the release button (16). Connect the flash unit (socket 6) to the flash contact (PC socket) of the camera with the enclosed synchronization cord (22). Now switch on the flash unit.

Setting up the camera
If the camera has a compour type shutter (leaf shutter), you can select any shutter speed up to 1/500 sec. – 1/125 sec. is generally recommended. For cameras with focal plane shutters select the shutter speed recommended by the manufacturer. If no details are available, select 1/30 second.

Switching on the Braun 2000 flash
Switch on the unit with the on/off switch (1) on the rear of the unit, (a red signal will be visible). A humming noise indicates

that the Braun 2000 flash is working. When the ready signal (7) lights, the unit is ready for use. If you now depress the camera shutter button you will simultaneously trigger the flash. You may fire the flash manually by using the red release button (8).
The flash is color corrected and is the same color as average daylight so use daylight color film for color prints or slides.

Flash operation in practice

VarioComputer Operation
As already mentioned, you can select one of three working apertures with the VarioComputer. This is done in the following way:

- First set the film speed on the aperture disc (10) (example, 100 ASA) opposite the light arrow.
  You can now see that the red setting arrow indicates you should use an aperture of f/8 and that the computer control range is from 1 3/5 to 19 feet on the 460 VCS and to 16 feet on the 380 BVC. Now set the computer programing switch (3) to the red position, and set the aperture in this example f/8, on your camera. The Vario-Computer will now correctly expose photographs within its working range.

- You can extend the computer control range by selecting the green position. This calls for an aperture of f/4 (with a 100 ASA film.) The computer control range is now increased to 38 feet or 31 feet respectively. The depth of field is of course reduced by using f/4 instead of f/8.

- Sometimes you may need a greater depth of field. This can be obtained by using a smaller aperture for example f/16), and selecting the yellow setting. In this case, the computer control range is reduced, as shown on the distance scale, to 9 1/2 or 8 feet respectively.

Manual Flash Operation
For subjects beyond the automatic control ranges, or for shots with the flash unit separated from the camera and connected by means of an extension cable, (PC to PC extension) you can switch off the computer and use manual operation. To do this, set the switch (3) to 0. Then set the film speed on the aperture disc to the white arrow. You will now find a choice of correct aperture settings opposite the distances on the outer ring.

Important: The distance referred above to is always the distance between the flash unit and the subject.

Note: When using the wide angle screen set the camera to one stop more than the aperture specified on the scale, (also see the section «Wide angle flashing»).

Bounce Flash Operation
The new vario reflector of the Braun 2000 flash permits soft lighting of the subject with more diffused light, regardless of whether the camera is used horizontally or vertically.

Indirect or bounce flash is possible only indoors from a white ceiling or a white wall. Please note that the reflecting surface must be white. Indirect or bounce flash for *color* photography is possible only where there is a white surface like a white ceiling, wall, or other reflector, from which to bounce the light. Surfaces other than white will reflect light which is the same color as the surface and distort the colors in a photograph. For black and white photographs the color of the reflecting surface does not matter. However, light colored, smooth surfaces reflect more light.

For bounce flash operation the vario reflector can be swung in almost any directions.

For horizontal pictures (and for square pictures): the vario reflector may be

directed up to 120° upwards, with a click stop at 90° (see figure 2); or to either side (for special bounce side lighting effects), with a click stop at 90° (see figure 3).

For vertical format pictures, select the appropriate reflector position; (example: room ceiling as the reflecting surface) by swiveling as shown in figure 3. For side bounce lighting, swivel the vario reflector as shown in figure 2.
For bounce flash shots with cameras which have normal focal length leses, the reflector must be angled upwards more to than 60°, in order to prevent the upper part of the subject from being illuminated by direct light from the flash, and being overexposed.

Bounce Flash with the VarioComputer:
Because the flash loses power on the way from the flash unit to the ceiling, and then to the subject, it is recommended that you select a larger computer working aperture (see the section «Computer flash operation»). You can check whether there is sufficient lighting power by means of a test flash. To do this position the flash the same as for the actual shot and trigger the flash by means of the manual release (8). If the computer check lamp (11) lights, the light from the flash is sufficient. If not, move closer to the subject or, if possible, select a larger aperture.

Manual bounce flash operation:
Set computer switch (3) to 0.
In this case select a f/stop on your camera which is approximately one half to one f/stop larger than that specified on the aperture scale. This estimate is based on medium sized rooms with average reflection characteristics. Please note that the «distance» is not the distance between the flash unit and the subject, but rather the path the light will follow to and from the reflecting surface.

Wide angle flash
For wide angle flash, swing up the wide angle screen (14) located below the vario reflector, until it clicks into place in front of the reflector. This increases the illumination angle to 95° x 59° (ANSI PH 3.40). This corresponds to the requirements of a 28 mm or 24 mm lense on a 35 mm camera.

Because the light from the flash is distributed over a larger area in the wide angle position, the range and power of the flash is correspondingly reduced.
When using the VarioComputer, this has no effect on the normal method of operation. The *dotted lines* on the distance scale show the computer control ranges for wide angle operation. The computer automatically takes into account the reduced amount of light.

Use of the wide angle screen reduces the minimum working distance for automatic operation to 1 foot 2 inches.

Important: If you want to shoot with the wide angle screen but without computer exposure control, determine the aperture (f stop) for the distance, after setting the ASA film speed, and then open your camera aperture by one f stop.

Operation with the slave unit
If you want to trigger your Braun 2000 flash with the light of another flash unit but without any cable connections (example: for two light illumination for special lighting effects, or for larger rooms) set the «slave» switch (6) to position «1». The photocell (12) will now react to a light pulse produced by a second flash unit and trigger your Braun 2000 flash. It is immaterial whether the triggering flash illuminates the photocell directly or indirectly.

Whether the intensity of a flash is sufficient to trigger the flash of your unit, depends on the existing light condition, the reflecting surfaces surrounding the subject, the distance between flash units, and the angle of the photocell (12) to the other flash unit. A test flash is recommended.

You can operate your flash unit on VarioComputer automatic operation when it is functioning as a slave unit. You can also control the light relative amount of output by varying the position of the computer programing switch (3). Within the distance ranges for each color setting on the calculator dial, you can select a higher or lower relative light output by remembering that the green setting programs the computer to provide the least relative amount of light, and the yellow setting provides the relative maximum possible light. There are approximately 2 f stops of difference in light output between each color of the computer setting switch.

Warning: If you operate your Braun 2000 coupled directly to the camera, the switch «slave» must always be in the position -0-. Otherwise, unwanted flashes may be triggered in exceptional situations.
Set the slave switch to -1- only if you want to trigger the flash unit separately from the camera by means of the Servo Flash device.

Care and maintenance 460 VCS

Charging the batteries

If the ready lamp (7) does not light within 30 seconds with the computer switched off, it is time to re-charge the batteries. Please use only the charging unit FR 460 S (18) which matches the flash unit. First switch off the flash unit so that the mechanical interlock exposes the socket (2) for the charging unit plug (20). *Be sure that the voltage selector switch on the charging unit is set correctly (115 for North America).* Now connect the unit plug (20) to the socket (2) and plug the electrical cord of the charger (19) into outlet. During the one hour rapid charging process, the pilot lamp (21) on the charging unit will be lit. It is extinguished when the unit switches to trickle charging. Please note the following:

1. A completely discharged unit is fully charged after approximately one hour.

2. If the charging unit remains connected to the power supply for a longer time, no damage will be caused because *a protective circuit prevents over-charging.*

3. A completely discharged (deep discharged) battery which has been stored for an extended period, will not reach is full capacity after one hour. In these cases, leave the battery (flash unit) *connected to the charging unit for at least another 14 hours.*

Maintenance

The 460 VCS is equipped with a high quality nickle-cadmium battery which has a long life if it is cared for properly. Here are a few suggestions and rules:

1. Switch off your flash unit during longer intervals between shots, this will save battery power.

2. *Do not store the flash unit immediately after triggering a flash,* but wait until the ready lamp (7) lights again before switching the unit off. Do not fire another flash.

3. *Do not store the flash unit for long periods with discharged battery.*

4. *If the flash unit is not in use, recharge the battery every two to three months,* because battery will discharge itself during this period. Regular charging, even at more frequent intervals, is recommended and causes no damage because of the over-charging protection circuit.

380 BVC

Changing batteries

Non-rechargeable batteries should be replaced as soon as the re-cycling time

increases to approximately 60 seconds. Replace batteries as a complete set. Always use fresh batteries because only these will guarantee optimum performance. Rechargeable nickle-cadmium batteries should be recharged as soon as the re-cycling time reaches approximately 30 seconds. Remove the batteries when storing the unit to eliminate possibility of damage in the event that a battery leaks.

Maintenance
Switch off your Braun 2000 flash after use and during long intervals between shots, this will save battery power. Do not store the flash unit for long periods immediately after triggering a flash, but wait until the ready lamp (7) lights again, and then switch the unit off without firing another flash. The ready light will extinguish automatically after a short period.

Optional Accessories

Braun VarioControl 2000 External Sensor (23)

With this unit you can increase the versility of your Braun 2000 flash considerably. You can have the advantages of computer controled flash exposure even if the flash unit is separated from the camera, or if you are using several flash units at once. Mounted on the accessory shoe of your camera, the Braun 2000 External Sensor becomes a programming centre and offers the following advantages:

- 8 computer apertures instead of three (a total of 22 f stop options including intermediate f stop settings).
- Increased ranges for automatic flash operation or greater depth of field with smaller apertures.
- Ready lamp near the view finder, this is important, when the flash unit is located away from the camera.
- Manual fireing and computer check signal at the camera.
- Hot shoe contact or synchronization (PC) cord connection.
- 6 1/2 foot synchronization (PC) cord.

Adapter bracket for 2 1/2" cameras (24)
This adapter simply slides onto the camera bracket and provides greater stability when using the flash unit with medium format cameras (2 1/4 x 2 1/4).

Carring case (25)
This practical shoulder bag carries the flash unit, camera bracket, and charging unit (FR 460 S).

Important safeguards

When using your photographic equipment, basic safety precautions should always be followed, including the following:

1. Read and understand all instructions.

2. Close supervision is necessary when any electrical equipment is used by or near children. When using the charger, keep out of reach of children.

3. Do not operate the charger if the cord is damaged, or the charger has been dropped or damaged, until it has been examined by a qualified serviceman.

4. Do not allow the charger cord to hang over the edge of a table or counter, or touch hot surfaces. Care should be taken to arrange the unit so that the cord will not be tripped over or pulled.

5. Always unplug the charger from the electrical outlet when not in use. Never yank cord to pull plug from outlet. Grasp plug and pull to disconnect.

6. Loop cord loosely when storing.

7. To avoid electric shock hazard, do not disassemble any part of your unit, but take it to a qualified serviceman when repair work is required. Incorrect re-assembly can cause electric shock hazard when the charger is used subsequently.

Save these instructions

Technical Data		380 BVC		460 VCS
Wattseconds		77		105
Guide No. for 100 ASA		125 (89 for wide angle)		151 (105 for wide angle)
Guide No. for 50 ASA		89 (62 for wide angle)		105 (76 for wide angle)
Guide No. for 25 ASA		62 (44 for wide angle)		76 (53 for wide angle)
Re-cycling time:				
Without computer		12 sec [1]) (6 sec) [2])		6 sec
With VarioComputer			Alkali-Manganese Nickel-Cadmium	
in green range	at	3 1/3 ft. (16 ft.) – 0.4 sec (2.5 sec)	0.4 sec (2.0 sec)	3 1/3 ft. (19 ft.) – 0.3 sec (1.5 sec)
in red range	at	1 3/5 ft. (8 ft.) – 0.4 sec (2.5 sec)	0.4 sec (2.0 sec)	1 3/5 ft. (9 1/2 ft.) – 0.3 sec (1.5 sec)
in yellow range	at	1 3/5 ft. (4 ft.) – 0.8 sec (2.5 sec)	1.0 sec (2.0 sec)	1 3/5 ft. (4 3/4 ft.) – 0.3 sec (1.5 sec)
very light subject	at	1 3/5 ft. – 0.3 sec	0.3 sec	1 3/5 ft. – 0.25 sec
Flash duration (t 0.1) approx.		1/500 – 1/17000 sec		1/400 – 1/17000 sec
Flash capacity				
Without VarioComputer		80 [1]) (50) [2])		40
With VarioComputer			Alkali-Manganese Nickel-Cadmium	
in green range	at	3 1/3 ft. (16 ft.) – 2.800 (460)	1.400 (280)	3 1/3 ft. (19 ft.) – 1.800 (220)
in red range	at	1 3/5 ft. (8 ft.) – 2.800 (460)	1.400 (280)	1 3/5 ft. (9 1/2 ft.) – 1.800 (220)
in yellow range	at	1 3/5 ft. (4 ft.) – 2.200 (460)	1.100 (280)	1 3/5 ft. (4 3/4 ft.) – 1.500 (220)
very light subject	at	1 3/5 ft. – 3.200	1.600	2.000
Working apertures for 100 ASA		f4 - f8 - f16		f4 - f8 - f16
Working apertures for 50 ASA		f2.8 - f5.6 - f11		f2.8 - f5.6 - f11
Working apertures for 25 ASA		f2.0 - f4 - f8		f2.0 - f4 - f8
Computer control range			wide angle	Wide angle
Green range		3 1/3 – 31 ft.	2 1/2 – 22 ft.	3 1/3 – 38 ft. 2 1/2 – 26 ft.
Red range		1 3/5 – 16 ft.	1 1/5 – 11 ft.	1 2/5 – 19 ft. 1 1/5 – 13 ft.
Yellow range		1 3/5 – 8 ft.	1 1/5 – 5 1/2 ft.	1 3/5 – 9 1/2 ft. 1 1/5 – 6 1/2 ft.

Vario reflector		click stop at 90°
Vertical swivel angle	up to 120° upwards, click stop at 90°	up to 120° upwards.
Horizontal swivel angle	up to 174° to the left and right. Click stops in the normal position and at 90° each side.	up to 174° to the left and right; Click stops in the normal position and at 90° each side.
Illumination angles	Approx. focal length for format 24 x 36	Approx. focal length for format 24 x 36
Normal angle approx.	79° x 53°, diagonal 75°, approx. 35 mm	79° x 53°, diagonal 75°, 36 mm
Wide angle approx.	95° x 59°, diagonal 95°, approx. 24 mm	95° x 59°, diagonal 95°, 24 mm
Slave unit	Sensitive to guide No. 17; approx. maximum range direct 40 ft., at 45° – 20 ft.	Sensitive to guide No. 17; approx. maximum range direct 40 ft., at 45° – 20 ft.
Color temperature	5.600 K	5.600 K
Charging time for NC battery	(according to charging unit)	1 hour (over-charging protection)
Charging unit	–	FR 460 S
Dimensions	3 x 8 x 2 1/2 inches (approx.)	3 x 8 x 2 1/2 inches (approx.)
Weight	approx. 19 ounces (without batteries)	approx. 23 ounces
Optional Accessories	Ever-ready case, VarioControl 2000, 6 x 6 adapter for camera bracket.	Ever-ready case, VarioControl 2000, 6 x 6 adapter for camera bracket.

[1]) With Alkali-Manganese cells (e. g. Mallory Mn 1500, Varta No. 7244, Daimon Mn 1500, Ucar E 91, Ever-ready E 91).
[2]) With Nickel-Cadmium cells (e. g. Varta 501 RS, Daimon NC 50, Sanyo N 500 AA).

Technical specifications according to DIN 19011 and ANSI PH 3.40 resp.
Technical changes reserved.

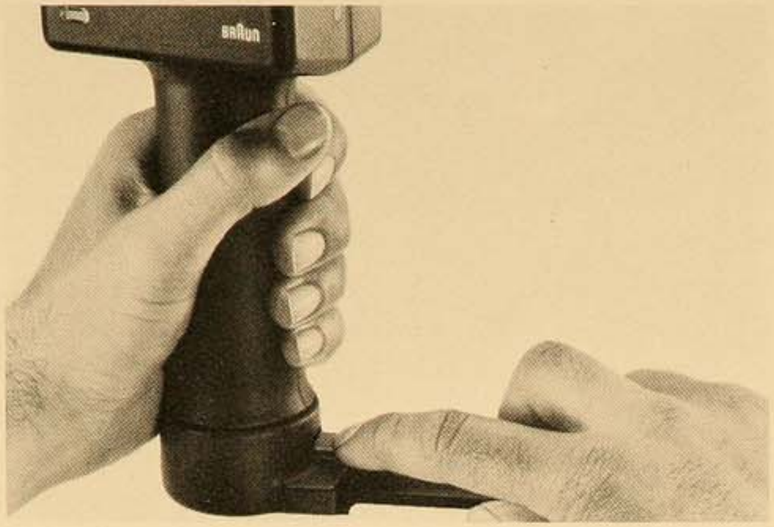
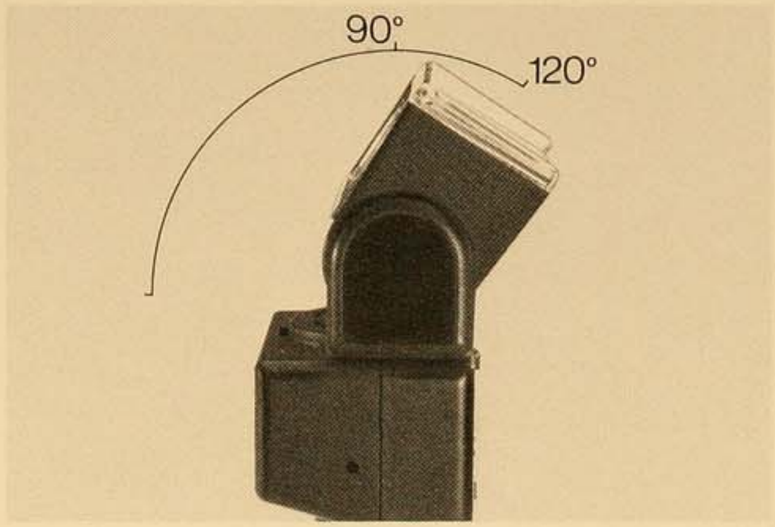


Abb. 1



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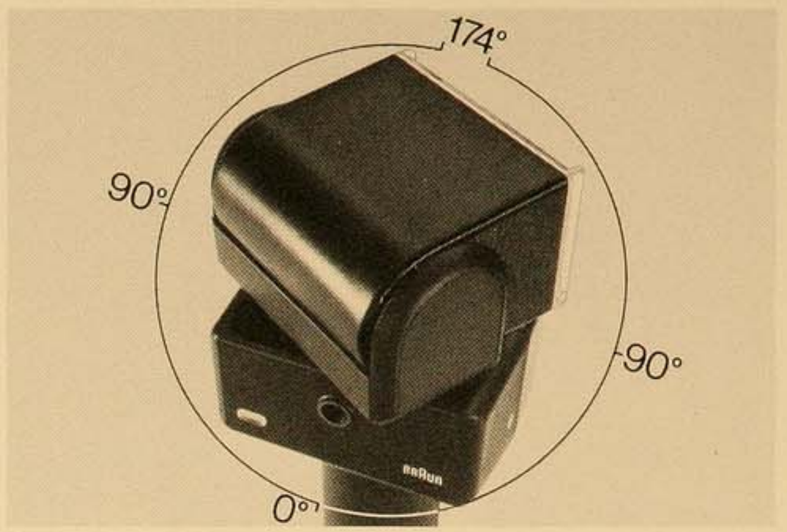

Abb. 3