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# MECABLITZ 45CL-1

Operating Instructions

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# Foreword

Congratulations on purchasing this METZ flashgun, and thank you for your confidence in METZ equipment.

It is only natural that you should want to use your flashgun straight away. However, it will be well worth your while to study these Operating Instructions carefully beforehand to ensure that you can operate the flashgun effectively and without any problems.

## Points worth knowing

This flashgun can be used with:

- All cameras with a hot shoe in conjunction with the synch cable 45-54 (optional accessory)
- All cameras with synch connection in conjunction with the supplied synch cable
- System cameras

### Brief survey of the operating functions:

#### Configuration

- 45 CL-1 with synch cable:

#### Operating modes possible

Automatic flash mode, Ch. 3, p. 30  
Manual flash mode, Ch. 4, p. 32

The mecablitz 45 CL-1 is available in two versions:

- The mecablitz 45 CL-1-NC with NiCad battery and battery charger.  
The NC version can be expanded to alkaline manganese battery operation by way of the battery holder 45-39 (available as an optional extra).
- The mecablitz 45 CL-1-BAT (for operation with alkaline manganese batteries; (batteries are not included).  
The battery version can be upgraded to rechargeable NiCad battery operation by adding the B 45 charger set (= NiCad battery and battery charger).

The mecablitz 45 CL-1 is a powerful flashgun based on the most modern technology.

### Outstanding features:

- Universal, swivelling quadrolight reflector for bounced flash without having to forgo the benefits of automatic exposure control.
- Wide-angle diffuser.
- Automatic exposure control with a selection of 5 working apertures to easily resolve the problems associated with depth-of-field and to offer greater creative scope regarding camera settings.
- Power-saving thyristor light output control, particularly in the close-up range, for shorter recycle times and a higher number of flashes from just one battery charge.
- Correct exposure confirmation (auto check).
- Convenient calculator dial for all settings.
- Manual mode.

# 1. Safety Instructions

- Never fire a flash in the immediate vicinity of the eyes!

Flash fired directly in front of the eyes of a person or animal can damage the retina and lead to severe visual disorders, even blindness!

- Do not open or short-circuit rechargeable batteries!
- Alkaline manganese and rechargeable batteries should not be exposed to excessive heat, for instance sunshine, fire and the like!
- Never throw spent batteries in a fire! Danger of explosion!
- Lye can leak out of spent batteries and damage the contacts. Consequently, spent batteries must always be immediately taken out of the battery housing.
- NEVER recharge dry-cell batteries.
- Do not expose the flashgun to dripping or splashing water!
- Protect the flashgun against excessive heat and high humidity levels! Do not store the flashgun in the glove compartment of a car!
- Do not place any light-impermeable material on, or directly in front of, the diffuser. Ensure that the diffuser is always clean. The high light output of the flash will burn the material or the diffuser if this is not observed.
- Never take the flashgun apart! DANGER - HIGH VOLTAGE!  
There are no parts inside the flashgun that can be repaired by a layperson!

## 2. Preparing the Flashgun for Use



Fig. 1a: Mounting the components

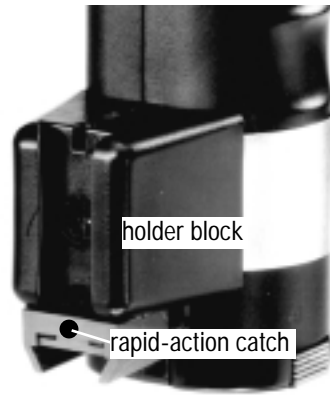



Fig. 1b: Inserting the camera bracket

### 2.1 Attaching the flashgun to a camera

The macablitz must always be connected to the X contact on the camera or the synchronization selector must be set to X.

 ***Always switch off the camera and the flashgun before mounting or removing the flashgun.***

Mounting the ***flashgun***:

- Fasten the camera bracket with the bracket screw to the camera's tripod bush. For medium- and large-format cameras we recommend the use of the 202/4 bracket (optional accessory).
- Insert the camera bracket into the rapid-action catch of the holder block until it is audibly engaged (fig. 1b).
- Secure the camera bracket with the locking screw.
- Connect the synch cable to the flashgun and camera.

## 2. Preparing the Flashgun for Use

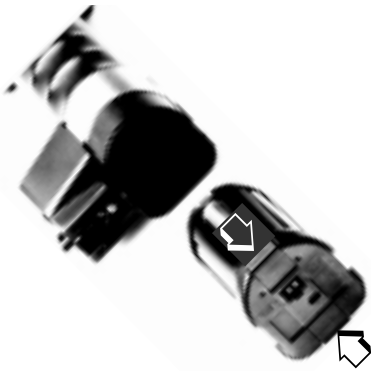


Fig.2a: Battery changing



Fig.2b: Opening the battery housing  
(only with BAT-version, otherwise optional extra)

### 2.2 Power supply

The flashgun can be operated with:


- Alkaline manganese batteries, size IEC LR 6 (AA-type) (only with BAT-version, otherwise optional extra)
- Metz NiCad battery pack 45-40 (only if NiCad is featured; otherwise available as an optional accessory). A charger (see table 2, page 25) is included with the flashgun if NiCad is featured).
- Power Pack P 50 (optional accessory)
- Mains unit N 22 or N 23 (optional accessories)


### 2.3 Battery replacement

Press the two locking keys of the battery housing, and pull out of the flashgun (fig. 2a). To return the battery housing press the two locking keys together and press into the handle-mount grip of the flashgun until it audibly engages.

#### 2.3.1 Exchanging the batteries

Press together the smooth locking keys of the dismantled battery housing (only with BAT-version, otherwise optional extra) and remove the lid (fig. 2b). Insert new batteries in conformity with the polarity symbols indicated in the base of the housing. Return the lid and lock in again.

 **Spent batteries must not be thrown into the domestic waste! Help keep the environment clean and discard spent batteries at corresponding collecting points!**

 **The battery housing must not be fitted with NiCad batteries! The contacts of the battery housing are only intended for alkaline manganese batteries.**

*The lower resistance of NiCad batteries means that more current can flow, and this can damage the flashgun. The NiCad Battery Pack 45-40 has special contacts which do not allow the flow of high currents.*

## 2. Preparing the Flashgun for Use



Fig. 3a: Voltage selector



Fig. 3b: Charging the battery

### 2.3.2 Operation with the battery pack (only with NC-version, otherwise optional extra)

The NiCad battery should be charged for 5 hours before it is used for the first time. The NiCad battery can be charged within the flashgun or externally.

**⚠ Warning: The flashgun must NOT be switched on while the battery is being charged within the flashgun!**

The NiCad battery is discharged if the recycle time after a flash exceeds 60 seconds.

Adjust the correct mains voltage on the charger prior to charging. The voltage selector (fig. 3a) is located next to the plug and can be adjusted with a small screwdriver.

The connection for the charger (fig. 3b) is in the base of the NiCad battery. The adjoining pilot lamp lights up while charging is in progress.

The charging time for a completely exhausted NiCad battery is 5 hours. A partly discharged NiCad battery requires a correspondingly diminished charging time.

**To identify an exhausted battery:** Push the knurled slide in the battery lid to the black mark.

**To identify a charged battery:** Push the knurled slide in the battery lid to the white mark.

The Nicad battery can also be charged with the in-car charger A 16 (optional accessory).

## 2. Preparing the Flashgun for Use

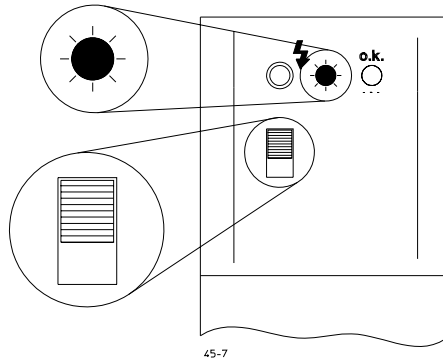



Fig. 4: Switching on the flashgun

### 2.3.3 Operation with the mains unit

The mecablitz can be powered directly from a wall outlet in conjunction with the mains units N 22 or N 23 (optional accessories). The connection for the above mains units is located in the side of the handle-mount grip.

 **During operation with the mains unit the flashgun must be switched off with the main switch.**

 **To avoid thermal overloading, flash series involving more than 30 flashes at maximum light output must be based on the following recycling times:**

- **In continuous mode: 30 seconds after each full-power flash.**
- **In intermittent mode: A maximum of 10 flashes with shortest recycling time, followed by a pause of at least 4 minutes.**

### 2.4 Switching the flashgun on and off


The flashgun is switched on with the main switch (fig. 4). The flashgun is permanently switched on when the switch is pushed to the top position, and the operating light shines. Push the main switch to the bottom position to switch off the flashgun.



### 3. Automatic Flash Mode

*To achieve the shortest possible depth-of-field (as required in portraiture) we recommend an aperture of f/2.8. For group shots where there can be several rows of people behind each other, we recommend an aperture of f/8.*

- Wait for flash readiness - the green LED lights up.

 ***The subject should be within the middle third of the distance range. This gives the electronic control sufficient scope for compensation should this be necessary.***

There is a certain measure of overlap between the individual automatic apertures. As a result of this overlap it is always possible to place the subject within the middle third of the range.

 ***CAUTION with zoom lenses!***

***Due to their design they can cause a loss of light in the order of up to one f-stop. Furthermore, the effective aperture can also vary, depending upon the adjusted focal length. This must be compensated by manually correcting the aperture setting on the flashgun!***

## 4. Manual Flash Mode



Fig. 7: Shot with direct flash light

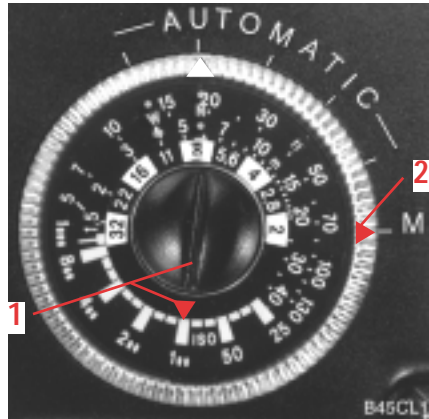


Fig. 8: Adjusting procedure for manual flash mode

In this mode the flashgun will emit its full power. The flashgun can be adapted to the actual picture shooting situation by setting the corresponding aperture on the camera.

If the displayed value does not coincide with the actual distance, then the aperture have to be changed accordingly.


### Adjusting procedure for the manual flash mode:

**Example:**            *Flash-to-subject distance: 5 m*  
                              *Film speed: ISO 100/21° (see fig.8)*

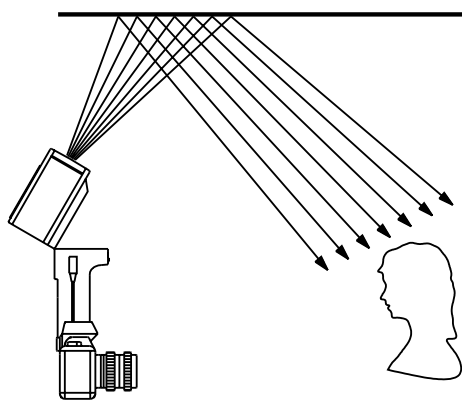
- Adjust the camera according to the manufacturer's operating instructions.
- 1** Turn the adjusting knob for film speed until the marker is positioned opposite the ISO film speed.
- Switch on the flashgun with the main switch.
- 2** Set the selector dial to M.

The aperture to be adjusted is indicated on the scale above the given flash-to-subject distance.

*At a flash-to-subject distance of 5 m (as in our example), an aperture of f/8 has to be set on the camera.*

 **The adjusted aperture must be corrected when the wide-angle diffuser is used.**

## 5. Bounced Flash



45-12-1



Fig. 9: Bounced flash (The photo was shot with the flash bounced off the right-hand wall)

Photos shot with full frontal flash are easily recognizable by their harsh, dense shadows. This is often associated with a sharp drop of light from the foreground to the background.

This phenomenon can be avoided with **bounced flash** because the diffused light will produce a soft and uniform rendition of both the subject and the background. For this purpose the main reflector is turned in such a manner that the flash is bounced back from a suitable reflective surface (e.g. ceiling or walls of a room).

For this reason the main reflector can be turned vertically and horizontally. The following are the vertical lock-in positions for bounced flash:

- 15°, 30°, 45°, 60°, 75° and 90° (simply tilt the reflector to the required angle)

The head can be swivelled horizontally to the left and right by 180°, and locks into position at 90° and 180°.

☞ ***When swivelling the reflector vertically, it is essential to ensure that it is turned by a sufficiently wide angle so that direct light can no longer fall on the subject. Therefore, always tilt the reflector to at least the 60° lock-in position.***

The diffused light bounced back from the reflective surfaces results in a soft illumination of the subject.

The reflecting surface must be white or a neutral colour, and it must not be structured (e.g. wooden beams in the ceiling) as this could cast shadows. For colour effects just select reflective surfaces in the required colour.

## 5. Bounced Flash

### 5.1 Bounced flash in automatic flash modes

It is advisable to check prior to the actual exposure whether the light is sufficient for the selected aperture. Please refer to Ch. 7, Auto-check display, for the corresponding procedure.

### 5.2 Bounced flash in manual flash mode

The required camera aperture in the manual flash mode is best established with an exposure meter. Observe the following rule of thumb if an exposure meter is not available

$$\text{Camera aperture} = \frac{\text{guide number}}{\text{light distance} \times 2}$$

to establish the guide value for the aperture that can then be varied by +1 f-stop for the actual exposure.

## 6. Fill-in Flash in Daylight



*Fig. 13: Fill-in flash in daylight (left without - right with mecablitz)*

The mecablitz can also be used for fill-in flash in daylight to soften harsh shadows and lower the contrast, thereby producing a more balanced exposure when shooting against the light. Various possibilities are open to the user for this purpose.

### 6.1 Fill-in flash in automatic mode

Use the camera, or a hand-held exposure meter, to establish the required aperture and shutter speed for a normal exposure. Ensure that the shutter speed either equals, or is slower than, the fastest flash synch speed (varies with the given camera model).

*Example:*

*Established aperture = f/8; established shutter speed = 1/60 sec. Flash synch speed of the camera, e.g. 1/100 sec. (see operating instructions for the given camera).*

The two established values for aperture and shutter speed can be set on the camera because the camera's shutter speed is slower than the camera's flash synch speed.

To maintain a balanced range of highlights, for instance in order to retain the character of the shadows, it is advisable to select the automatic aperture on the flashgun one setting lower than the aperture adjusted on the camera. In the above example the camera was adjusted to f/8. Consequently, we advise you to set an aperture of f/5.6 on the flashgun.

**👉 When shooting into the light, ensure that the backlight does not shine directly onto the sensor as this will confuse the flashgun's electronics!**

## 7. Auto-Check Display

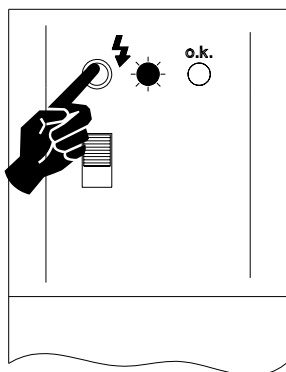


Fig. 10: Manual firing button

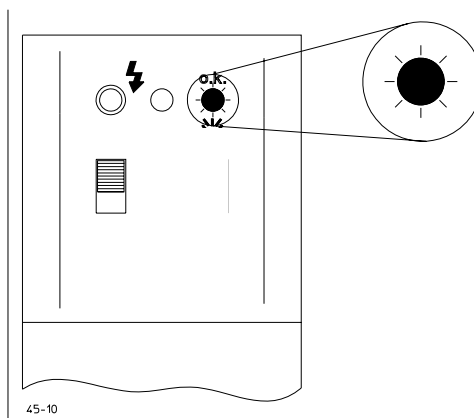


Fig. 11: Auto-check signal


The auto-check signal **o.k.** lights up only when the frame will be, or was, correctly exposed in auto mode.

In this manner it is possible to manually fire a test flash while in auto mode so that the correct aperture can be established beforehand. This is particularly valuable with bounced (indirect) flash when reflection conditions are difficult to judge.

The test flash is triggered with the manual firing button (fig. 10).

If the auto-check display **o.k.** remains dark after a test flash, then adjust the next wider aperture, or diminish the distance to the reflection surface of the subject, and then repeat the test flash.

The f-stop established in this manner must also be set on the camera.

 **Hold the camera and the flashgun with photosensor in the same manner as for the actual shot.**

## 8. Illumination and Wide-Angle Diffuser

The wide-angle diffuser widens the horizontal lighting angle from 62° to 65°, and the vertical lighting angle from 42° to 60°.

The wide-angle diffuser is intended for use with focal lengths of less than 35 mm (for 24 x 36 mm), and less than 75 mm (for 6 x 6 cm).

### **Mounting:**

Slip the wide angle diffuser on the reflector and allow the two lateral catches to engage into the reflector slots.

For removal, slightly lift the diffuser laterally and pull it off toward the front.

When the wide angle diffuser is used, there is a loss in light of one stop value. The guide number and maximum range for computer operating are then reduced to about 70% of the value for use of flash without wide angle diffuser. With the wide angle diffuser used in the auto mode, the mark „W“ on the aperture calculator dial indicates the maximum operating range. For aperture settings, there is the mark „N“.

Shadows on the lower pictures edge are noticeable for exposure with short distance due to parallax between the camera lens and flash unit reflector. This can be rectified by use of the wide angle diffuser or bracket adapter 45-35 or 60-28.


## 9. Exposure Corrections

The automatic exposure systems are based on a subject reflection factor of 25%, this being the average reflection factor for subjects shot with flash.

Dark backgrounds absorb a lot of light, while bright backgrounds reflect a great deal of light (e.g. backlit scenes), thereby resulting in subject overexposure or underexposure, respectively.


### 9.1 Exposure correction in automatic flash mode

To compensate the above mentioned effect, the exposure can be corrected by opening or stopping down the camera's aperture. With a bright background the sensor of the flashgun cuts out the flash too soon with the result that the actual subject is too dark. With a dark background the flash is cut out too late so that the actual subject is too bright.

 **Bright background:**

*Open the camera aperture by 1/2 to 1 f-stop*

*(e.g. from f/5.6 to f/4).*

 **Dark background:**

*Close the aperture by 1/2 to 1 f-stop*

*(e.g. from f/8 to f/11).*

## 10. Care and Maintenance

Remove dust and grime with a soft dry cloth, or a silicon-treated cloth. Do not use detergents as these may damage the plastic parts.

### Forming the flash capacitor

The flash capacitor incorporated in the flashgun undergoes a physical change when the flashgun is not switched on for prolonged periods. For this reason it is necessary to switch on the flashgun for approx. 10 minutes every 3 months. The battery must supply sufficient power to light up the flash-ready light within one minute after the flashgun was switched on.

## 11. Technical Data

**Guide numbers at ISO 100/21°:** For meter systems: 45; for feet systems: 148

**5 auto working apertures at ISO 100/21°:** f/2.8 - f/4 - f/5.6 - f/8 - f/11

**Flash durations:**

- approx. 1/300...1/20000 second
- In M mode approx. 1/300 second at full light output

**Photosensor measuring angle:** approx. 25°

**Colour temperature:** approx. 5600 K

**Film speed:** ISO 25 to ISO 1000

**Synchronization:** Low-voltage thyristor ignition

**Number of flashes:**

- 50\*...2000 NiCad battery
- 100\*...2600 with alkaline-manganese batteries
- 140\*...3600 with high-capacity alkaline-manganese batteries
- Unlimited with N 22/N 23 mains unit

(\*with full light output)

**Recycling time:**

- 7 sec. (in M mode)...0.3 with NiCad battery
- 13 sec. (in M mode)...0.3 sec. with alkaline-manganese batteries
- 11 sec. (in M mode)...0.3 sec. with high-capacity alkaline-manganese batteries
- 5 sec. (N 22)/18 sec. (N 23)...0.3 sec.

**Swivelling range and locking positions of zoom reflector:**

Upwards: 15° 30° 45° 60° 75° 90°

Anti-clockwise 90° 180°

Clockwise 90° 180°

**Dimensions (w x h x d), approx.**

Flashgun 92 x 247 x 102 mm

**Weight:**

Flashgun without power sources: approx. 680 g

**Included:**

Flashgun, camera bracket, battery housing 45-39 (only with BAT-version, otherwise optional extra), synch cable 45-47, wide-angle diffuser 45-42, Operating Instructions (additionally with NiCad flashguns: NiCad battery pack 45-40 and battery charger, see table 2).

## 11. Technical Data


| Film speed ISO | Guide number      |                  |
|----------------|-------------------|------------------|
|                | for meter systems | for feet systems |
| 25/15°         | 23                | 74               |
| 32/16°         | 25                | 83               |
| 40/17°         | 28                | 93               |
| 50/18°         | 32                | 105              |
| 64/19°         | 36                | 118              |
| 80/20°         | 40                | 132              |
| 100/21°        | 45                | 148              |
| 125/22°        | 50                | 166              |
| 160/23°        | 57                | 186              |
| 200/24°        | 64                | 209              |
| 250/25°        | 71                | 235              |
| 320/26°        | 80                | 263              |
| 400/27°        | 90                | 295              |
| 500/28°        | 101               | 331              |
| 650/29°        | 113               | 372              |
| 800/30°        | 127               | 417              |
| 1000/31°       | 142               | 468              |

Table 1: Guide numbers at maximum light output

| Country       | Type of charger |
|---------------|-----------------|
| Europe        | 729             |
| Great Britain | 723             |
| USA / Canada  | 728             |
| Australia     | 722             |
| Japan         | 730             |
| South Africa  | 402.12e         |
| New Zealand   | 725             |
| Korea         | 726             |

Table 2: Chargers

## 12. Optional Accessories

 **Malfunctions and damage caused to the mecablitz 45 CL-1 due to the use of accessories from other manufacturers are not covered by our guarantee!**

- Bag 45-29 (Order No: 0004529)  
for telephoto attachment 45-33.
- Battery holder 45-39  
For alkaline manganese batteries.
- Battery charger set B 45 (Order No: 0012045)  
NiCad battery and charger for subsequent conversion of the 45 CL-1 Battery model to NiCad battery operation.
- Bounce diffuser 60-33 (Order No: 0006033)  
To soften heavy shadows with reflected light.
- Bracket adapter 45-35 (Order No: 004535)  
For parallax correction of reflector and camera with close-ups and wide-angle shots.
- Bracket adapter 60-28 (Order No: 0006028)  
Similar to 45-35, except adjustable in height.
- Camera bracket 202/4 (Order No: 0000802)  
To attach the flashgun to the side of the camera.
- Camera cable release 45-26 (Order No: 0004526)  
The camera shutter can be tripped with the same hand that is holding the flashgun. This frees the other hand for focusing.
- Electric shutter release 45-25 (Order No: 0004525)  
As 45-26, except with switch for electric actuation.
- Ever-ready case 45-34 (Order No: 0004534)  
for flashgun and accessories.
- Filter set 45-32 (Order No: 0004532)  
Consists of a set of 4 colour effects filters and 1 clear filter to hold any coloured foil.
- In-car battery charger A 16  
The battery can be charged off the car's electrical system.
- Light reducing filter set 45-28 (Order No: 0004528)  
Consists of three neutral density filters, and a transparent filter holder for coloured foils.
- Mains unit N 22 (Order No: 0012022)  
Electronically stabilized and with 33 m cable.
- Mains unit N 23 (Order No: 0012023)  
Connection requires the special cable 359 (3 m) or 349 (6 m). The flash recycling times in manual mode are shortened to approx. 5 seconds. Two flashguns can be connected.
- Mecalux 11 (Order No: 0000011)  
Slave triggering unit. For optical, delay-free remote triggering of slave flashguns by a camera-triggered flash. Responds also to infrared light beam. Does not require batteries.
- Mecalux Holder 60-26 (Order No: 0006026)  
To mount the Mecalux 11.

## 12. Optional Accessories

- Mecamat 45-46 (Order No: 0004546)  
External sensor that significantly extends the application range of the mecablitz. 11 auto apertures are available. „MANUAL“ provides 7 co-ordinated light output levels with 7 fixed flash durations. Built-in viewfinder with parallax compensation for close-ups. Two measuring angles of 25° and 12° for optimal measurement.
- NiCad battery pack 45-40 (Order No: 0004540)
- Power Pack P 50 (Order No: 0012950)  
For a high number of flashes and short recycling times (approx. 300 full-power flashes)
- Shoulder strap 50-31 (Order No: 0005031)
- Stabilizing set 30-28 (Order No: 0003028)  
Ensures that the camera cannot be inadvertently turned on the bracket.
- Standard foot 301 (Order No: 0093014)  
Used in conjunction with SCA 300 A for connection to camera hot shoe.
- Synch lead SCA 300 A (Order No: 0009305)  
Cable to connect the flashgun to the adapter of the SCA 300 System.
- Synch lead SCA 3000 C (Order No: 0033003)  
Cable to connect the flashgun to the adapter of the SCA 3000 System.
- Synch leads:
  - Coiled synch lead 45-49 (Order No: 0004549)
  - Coiled synch lead 45-54 for hot shoe (Order No: 0004554)
  - Synch lead 45-48, 1 m (Order No: 0004548)
  - Synch extension lead 60-54 (5 m) (Order No: 0006054)
- Telephoto attachment 45-33 (Order No: 0004533)  
For flash shots with telelenses. Nearly doubles the guide number. Infrared shots are also possible.

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