

brnccolcr®

FCC

Bedienungsanleitung
Operating Instructions
Mode d'emploi
Istruzioni per l'uso
Manual de Instrucciones

使用説明書
オペレーションガイド



9303 Printed in Switzerland

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Schweiz (Switzerland)

 **brnccolcr**
The Light

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Operating and function elements

- 1 Key to set zero, Reset
- 2 Measuring key
- 3 Color temperature continuous light, IRS channel selection
- 4 Color temperature flash light, remote control power pack output
- 5 On/off key
- 6 Storage color temperature film 1
- 7 Synchro connection
- 8 Cord attachment
- 9 Storage color temperature film 2
- 10 Correction color temperature film 1, film 2
- 11 Correction color temperature Pulso A light source, Lux measurement
- 12 Flash time measurement t 0.1, measuring time
- 13 IR transmitter diodes for flash release, remote control
- 14 Starter photocell
- 15 Display panel
- 16 Measuring diffusor

- broncolor FCC is a multifunction measuring instrument called Flash Color Chronoscope.
- broncolor FCC measures the flash duration of any flash unit.
- broncolor FCC measures the color temperatures of flash light, continuous light or their combination in Kelvin.
- broncolor FCC measures the intensity of permanent light in lux.

Introduction

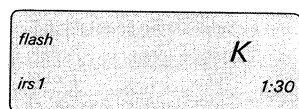
under / over

In all modes, the messages "over" or "under" will be displayed when the measuring ranges have been exceeded. If these messages are flashing, the measurement may be repeated under other light conditions (more or less light). If the display is continuous, the measuring range or the measuring method is wrong and cannot be performed.

Reset to basic mode

If the "RESET" (1) key is pressed longer than 3 s, the basic modes are set:

- FLASH mode
- IRS operating channel 1
- Measuring time $\frac{1}{30}$ s
- Film 1 5500 Kelvin
- Film 2 3400 Kelvin.



Blue, white keys

To activate the functions lettered in blue, the keys must be pressed for a minimum of 1 s.

Measuring errors

Wrong results or wrong displays may be caused if the infrared trigger signals are reflected by an object or a glass panel in the direct proximity of the measuring instrument and interpreted as a light pulse by mistake. In such cases, increase the distance between the objects named.

Color temperature in mixed light

If pulsed light, flash light is measured in combination with permanent light, glowing light, daylight, the color temperature of both light sources is determined and the mean value is shown. In this context, the measuring time may be $\frac{1}{30}$ or $\frac{1}{250}$ s long.

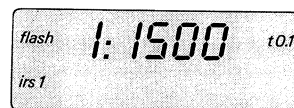
LUX measurement with weak light sources

With weak light sources, the display "wait" is first shown at the beginning of a measurement. The instrument then adds the incident light and shows the appropriate value after a few fractions of a second.

The modes "CORR, IRS, TIME" can be used in the "Flash" mode only.

1. Flash time measurement t 0.1

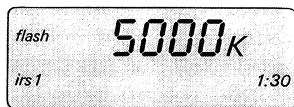
- 1.1 Switch on FCC with key 5.
- 1.2 Activate flash duration measuring mode with key t 0.1 (12).
- 1.3 Trigger measuring action by pressing the key (12), IR remote or via synchro cable connection (7), or via starter photocell (14) by external flash release.
- 1.4 Flash duration t 0.1 is shown in the display in fractions of seconds in a range of $\frac{1}{15}$ to $\frac{1}{6000}$ s.
- 1.5 When a measurement is repeated, zero setting is not required. Any release of the flash impulse shows the new measuring time. If intended, zero may be set via the key (1).
- 1.6 If light intensity is too great or too small, the display will flash "under" or "over." The quantity of light must then be increased or decreased.
- 1.7 In the measuring mode t 0.1, the display will flash after approx. 15 s in order to keep power consumption at a minimum in this mode. To reactivate, push the key "t 0.1" once again.



1.8 If several units are flashing at the same time, FCC will show the resulting flash duration giving the average of all units.

2. Flash light color temperature measurement

2.1 Switch on FCC with the key (5).

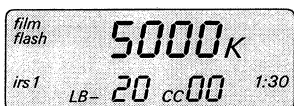


2.2 Activate flash light mode with "FLASH" key (4).

2.3 Trigger the measuring action by pressing the key (2), IR remote or via synchronous cable connection (7), or via starter photocell (14) by external flash release.

2.4 A 4 or 5 digit Kelvin figure in the range of 1800 K–40,000 K will be shown in the display field.

2.5 Press key Film 1 (6) or Film 2 (9), the display will show the Kelvin value relevant for the film involved plus the required correction value in LB or CC figures. The LB value will be displayed in MIREID in a range of ± 199 . Consulting the table on the rear of the FCC allows you to find the required LB filter to correct the color temperature using the relevant number. The data, such as CC 05 M (maximum value 50 M) or CC 10 G (maximum value 50 G) are values for the magenta or green filter correction. They correspond to the filter values by Kodak.



The display "Er" means that no correct measurement is feasible under the given circumstances or that a non-measurable light source is interfering.

3. Continuous light color temperature measurement

3.1 Switch on FCC with key (5).



3.2 Activate continuous light mode with "AM-BI" (3) key.

3.3 Activate measuring action with key (2).

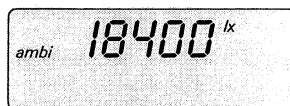
3.4 If a light source of low intensity is measured, the measuring action may take up to 10 s. The display "wait" is shown until the measuring action is completed.

3.5 The display shows the Kelvin figures in the range of 1800 K to 40,000 K.

3.6 To find the correction filter, proceed as under 2.4.

4. Lux measurement

4.1 Switch on FCC with key (5).



4.2 Activate lux mode (press key "LUX" (11) approx. 1 s).

4.3 Activate measuring action with key (2).

4.4 The display shows the lux figure in the range of 50 Lux to 100000 Lux. Guide value 18400 Lux = f:16, $\frac{1}{30}$ s for film sensitivity 100 ISO.

5. Remote control color temperature for Pulso A power packs

The Pulso A power packs are capable of producing differing color temperatures. The FCC can control the color temperature of the Pulso A power packs remotely.



5.1 In "flash" mode, press key "CORR" longer than 1 s. Use the "+/-" key to increase or decrease the color temperature of the light source.

6. IRS channel selection

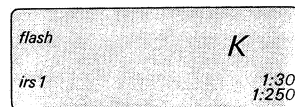
FCC is equipped with 2 IR transmitter channels with varying signal modulation. Transmitter and receiver must be set for the same channel in order to guarantee the selective release.



6.1 Press the "IRS" (3) key longer than 1 s, channel setting changes from 1 to 2. If the receiver on the Pulso power packs is switched to position 3, the signals of IRS channel 1 and those of IRS channel 2 will be received as well.

7. Measuring time setting for flash light operation

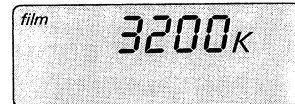
Flash light for color temperature may be measured at 2 times, $\frac{1}{30}$ s or at $\frac{1}{250}$ s.



7.1 Press "TIME" key (12) longer than 1 s in order to switch time setting from $\frac{1}{30}$ to $\frac{1}{250}$ s or vice versa.

8. Film programming

The color sensitivity of the color films used may be programmed in Kelvin. The three values 3200 K, 3400 K, 5500 K have been preprogrammed (see 8.2).



8.1 Press key "FILM 1" (6) or "FILM 2" (9) longer than 1 s, then increase or decrease the K value with "+" or "-" key.

8.2 In order to set the preprogrammed values 3200 K, 3400 K or 5500 K, first press the key "FILM 1" resp. "FILM 2" (slightly) longer than 1 s. Then press "-" (slightly) longer than 1 s, to read back the values.

9. Technical data

Colorimeter

| | |
|---------------------|--|
| Systems | 3-color integrator |
| Type of measurement | Flash or permanent light (without exchange of meas. head) |
| Measuring range | 1800°K to 40,000°K |
| Filtering | Filter calculation LB (Light Balancing) in a range of ± 199 mired Filter calculation CC (Color Compensating) 50 green to 50 magenta |
| Reference | Programming of the color temperature corresponding to the film at random or programmed |
| Measuring time | Flash light $\frac{1}{30}$ s or $\frac{1}{250}$ s Permanent light dependent on luminance (max. 10 s) |
| Max. brightness | Comparable to f:90 $\frac{1}{2}$ for 100° ISO |
| Synchronization | By infrared pulse (2-channel system) cable, photocell |
| IR transmitter | Suitable for flash release and remote control of color temperature for Pulso A units |

Chronoscope

| | |
|-----------------|--|
| System | Measuring of time period of a flash light pulse at t 0.1 |
| Measuring range | 1:15 s to 1:8000 s |

Luxmeter

Measuring range 50 lx to 100,000 lx

Power supply 1 battery 9V, type IEC, LRG1 6AM6
Alcaline, battery check display

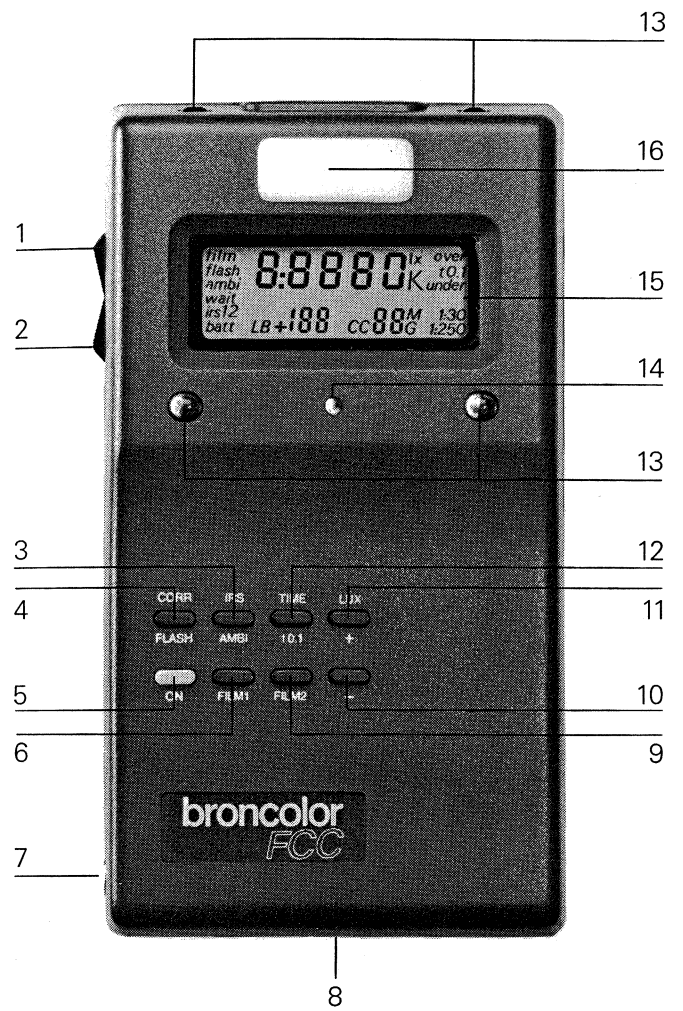
Display Liquid crystal

Dimensions 145 × 80 × 36 mm

Weight 220 g/270 g incl. battery

We reserve the right to make technical changes

| | | | |
|-------|--------|------|--------|
| film | 8:8880 | lx | over |
| flash | | | t0.1 |
| ambi | | K | under |
| wait | | | |
| irs12 | LB=188 | CC88 | M 1:30 |
| batt | | G | 1:250 |



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