



**BEDIENUNGSANLEITUNG  
OPERATING INSTRUCTION  
MODE D'EMPLOI**

**broncolor**  
*compuls*

9012 Printed in Switzerland

  
**broncolor**  
The Light

Bron Elektronik AG  
CH-4123 Allschwil  
Schweiz (Switzerland)



C O N T E N T S

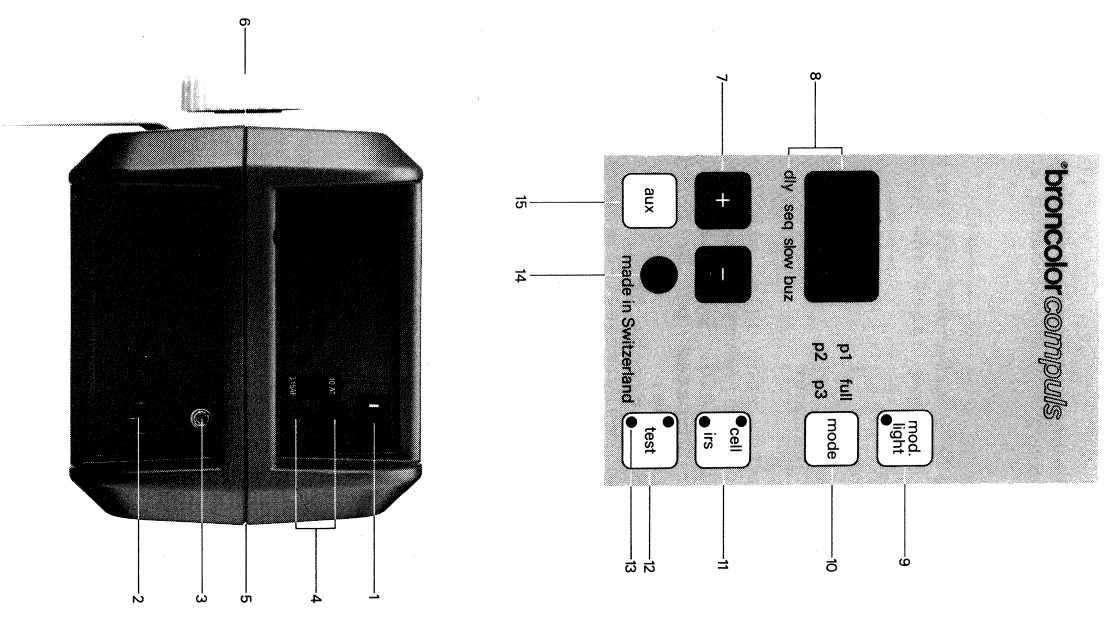
	<u>page</u>
- Caution: please read prior to startup	17
1. Function and Operating Elements	18
2. Start up	20
3. Flash energy adjustment	20
4. Modelling light	20
5. Photo cell	21
6. IRS infrared release	21
7. Flash release	22
8. Auxilliary functions	22
9. Program version	25
10. Accessories	27
11. Technical Data	28

Caution: Please read prior to startup

- Prior to replacing fuses, light bulbs or flash tubes, discharge the power pack and disconnect from power. Disconnect the lamp from the power pack.
- Only those types of fuses indicated on the fuse label may be used. This is particularly important for fusing the halogen lamp in the lamp base which may burst if the wrong fuse is used.
- Only sand-filled fuses may be used. Sand-filled fuses can be identified by the opaque body of the fuse.
- The devices are designed for use in dry rooms. Protect them against splash water and against excessive exposure to dust.
- The devices are not suitable for use in an environment with risks of explosions.
- The accessories mounted to the lamp heads may heat up to high temperatures under specific conditions. Handle with care!
- With due allowance for heat radiation, lamp heads with more than 100 W modelling light may be directed against inflammable surfaces only at a minimum distance of 1 m.
- Flash light contains, similar to sunlight, a specific portion of UV light. The undesirable side effects on skin and eyes are considerably reduced by using flash tubes and glass hoods with UV coating. Without these or other protective filters, use extreme care when shooting.
- Even when disconnected from power, dangerous voltages may continue within the interior of the device. For this reason, devices should be opened by trained personnel only.
- **broncolor** power packs and lamp heads meet an extremely high safety standard. When connecting **broncolor** lamp heads to outside lamp heads, integrated safety measures may become ineffective. Due to different design features and contact assignment on the lamp head plug of the outside make, there may even be a risk for the user. We expressly refuse any guarantee and liability for damages which may be caused by this type of illegal combination.

1. Function and Operating Elements

1. Power switch, main switch
2. Power connection
3. Synchronous cable connection
4. Fuse element
5. Release for reflector change
6. Umbrella holder attachment
7. Flash energy control "+/-"
8. Number display and auxiliary functions display
9. Modelling light ON/OFF "mod. light"
10. Operating mode modelling light "mode"
11. Photo cell/IRS, ON/OFF "cell + irs"
12. Open flash "test" button
13. Photo cell
14. IRS receiver cell
15. Auxiliary functions "aux"



2. Start up

2.1 Fit unit with flash tube and modelling lamp. Flash tube and modelling lamp are packed separately for transportation. The flash tube and the glass protecting cover available as an option are available uncoated and in two different UV coatings.

2.2 Connect unit to the grounded net in compliance with the information on the type label and activate via the power switch (1).

3. Flash energy adjustment

3.1 Set intended energy step using the key "+/-" (7). The adjustment range covers four stops (1:16). Maximum output 10, minimum 6.0. By briefly touching the keys, the output is adjusted by 1/10 values, by extended touching by 1/1 value. During charging or discharging, the number display (8) blinks until the newly selected energy level is reached.

4. Modelling light

4.1 The compuls units are equipped with a halogen modelling light. The modelling light is activated via the key "mod.light" (9).

4.2 The brightness of the modelling light may be set proportionally to the flash intensity. In order that proportionality is guaranteed even when compuls units of differing outputs 65/95/165 are used at the same time, these are fitted with various steps of proportionality.

4.3 The proportionality step of the modelling light may be selected using the key "mode" (10). By repeated pressing, the following operating modes are feasible:

for compuls 165: p1, p2, p3, full  
for compuls 95 and 65: p2, p3, p4, full

The adjustment depends on the types of units in use at the same time. In order to provide the maximum brightness of the modelling light with a simultaneous proportionality, all types of units should be set for the identical maximum possible number. The following table shows the proportionality step to be set:

	Proportionality adjustment with combined use of units of differing energy			
compuls 65	4	3	2	-
compuls 95	4	3	2	-
compuls 165		3	2	1
pulso 2			2	1
pulso 4			2	1
pulso 8				1

5. Photo cell

5.1 The photo cell is used for a remote release via the flash pulse of any flash unit. Standby is displayed by the light emitting diode on the key "cell" (11). By pressing the key, the photo cell may be deactivated. (The light sensitive photo cell is located in the lower left corner in the key field "test"). So as not to interfere with the function "dly" or "seq" (see also Item 8) by outside flash releases, the photo cell is automatically blocked after the first release pulse which is shown by blinking of the diode in the key field "cell" (11).

6. IRS infrared release

6.1 The incorporated infrared receiver is used for remote release of the flash unit with the camera release via the IRS transmitter. Standby is shown on the light emitting diode of the key "irs/cell" (11). By pressing the key "irs/cell" (11), the IRS transmitter may be deactivated.

7. Flash release "test"

7.1 An open flash may be released using the key "test" (12). The green standby display in the key field is extinguished until the unit is again fully charged.

8. Auxiliary functions

Auxiliary functions are those functions displayed under the number display field (8):

- dly - delayed release (delay)
- seq - multi release (sequenz)
- slow - extended charging time (slow)
- buz - acoustic standby (buzzer)

In order to set an auxiliary function, the key "aux" (15) is pressed until one of the four intended functions blinks.

8.1 Delayed release "dly"

This operating mode is selected if, for example, after opening the camera shutter, an exposure by the available light (day light or modelling light) is to be performed first and the flash is to follow after the selected time interval.

Setting\_the\_delayed\_release\_"dly"---

- Press key "aux"
- Set the intended delay using the key "+/-" (7). (extended pressings 1/1 seconds, short pressing 1/10 of a second), max. adjustable delay 9.9 seconds.

- After adjustment, repeated pressing of the key "aux" switches back to the operating mode flash energy. The values entered remain stored which is shown by the illuminated display "dly". In order to switch to normal operations without "dly", the number display is to reset to 0.0 in position "dly".

8.2 Sequence "seq"

The operating mode sequence "seq" is used to generate a series of flashes with a freely selectable number of individual flashes (max. 51).

Setting\_the\_operating\_mode\_"seq"

- Press key "aux" (15) until the position "seq" blinks.
- Set intended number of flashes using the key "+/-".

The interval between the individual flash discharges is determined by the recharging time of the unit. It is a function of the type of unit and of the flash energy set.

8.3 Delay and sequence "dly/seq"

The combination of the operating modes "dly" and "seq" allow flash series of any number of flashes up to a maximum of 51 with preset intervals of a minimum of 0.2-2.3 s and a max. of 9.9 s between the individual flashes.

The adjustment is implemented on the basis of the descriptions under 8.1 and 8.2.

Since the shortest possible interval depends on the charging time of the type of unit and of the flash energy set, it may not be shorter than the required charging time. If the interval between the individual flashes is selected shorter than the charging time, the number display (8) is flickering. Set interval longer until display is illuminated continuously. If the shortest possible interval between individual flashes is intended, the flash energy should be set to the lowest step.

If the operating mode flash energy is switched while the interval is too short, the flickering of the number display disappears. However, an alternating blinking of the display "dly" and "seq" calls attention to the interval selected being too short. The operating mode "slow" cannot be set in the above described operating mode due to the extended charging time.

8.4

Slow

This auxiliary function is used if the mains fuse is not sufficient for the normal short charging time. (see also information under Technical Data). The combination "dly" and "seq" cannot be set in this operating mode.

Setting\_the\_operating\_mode\_"slow"

- Set position "slow" using the key "aux"

- Switch with key "+" or "-" from 0 to 1 to slow charging.
- Following this, key "aux" may be used to switch to flash energy display. The operating mode "slow" remains stored until a switch to 0 is again implemented.

8.5 Buzzer "buz"

This auxiliary function switches the acoustic flash standby signal and the key acknowledge signal on/off.

Setting the operating mode "buz":

- Set position "buz" using the key "aux".
- Use the key "+" or "-" to switch the acoustical signal on or off.
- Display 0 = off, display 1 = on.

The malfunction message signal will remain active even when the buzzer is switched off

8.6 Monitor and control function Hh/R1

The unit is equipped with an internal temperature monitor in order to avoid malfunctions by thermal overloads. If the number of flash discharges in the below list are exceeded, the thermal monitor switches the unit off.  
The display field shows the symbols Hh.

After the cooling phase, the unit is again ready to operate.

Max. number of flashes from the cold and the warm status

	cold	warm	continuous operation
computs 165	80	30	9.0 s
Energy step 10	200	90	2.9 s
computs 95	100	30	5.4 s
Energy step 10	300	100	1.8 s
Energy step 6			
computs 65	150	50	3.6 s
Energy step 10	400	150	1.2 s
Energy step 6			

Cooling time after activating the thermo until the release 3 1/2 min.

With an afterglow of the flash tube (continuous discharges) and for internal malfunctions of the charging transaction, the acoustical signal is sounded and the number display shows the symbols R1. If the malfunctions display is again shown after restart, the unit must be checked by a broncolor service department.

9. Programming functions

The microprocessor incorporated in the computs units allows a number of auxiliary functions of which the following may be of importance for the user.

All program functions described under 9.1 - 9.4 may be interrupted by pressing the key "aux", whereupon the unit will again revert to normal operating functions.

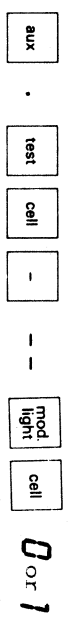
9.1 Flash energy control 1/10 and 1/3 stop

The flash energy control may be reprogrammed as follows from 1/10 to 1/3 stop steps.

- Press key "aux" until only the decimal point lights up in the display field.
- Following this, press the keys "test"/"cell"/"-" in sequence. The display shows --.
- Following this, press the keys "mod.light" and "cell":

The display shows 0 for 1/10 stop  
The display shows 1 for 1/3 stop

The conversion from 0 to 1 is generated with the key "+"



9.2 Flash counter

- In order to determine how many flashes have been released with the unit since start up, proceed as follows:
- Press key "aux" until only the decimal point lights up in the display field.
- Following this, press the keys "test"/"cell"/"-" in sequence. The display shows --.
- Following this, press the keys "mod.light"/"test"/"cell":

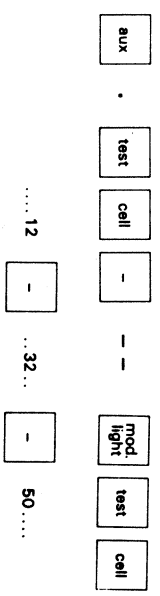
The two last digits of a 6 digit number are shown in the display field, e.g. ....12

By pressing the key "-", the next higher digits are shown, e.g. ..32.. (marked by illumination of "dly") and after repeated pressing of the key "-", the two highest digits are shown (marked by illumination of "dly" and "seg") e.g. 50.....  
Max. display size 99.99.99.

```

. . . . . 1 2
: : 3 2 . .
dly
5 0 . . . . .
dly seg

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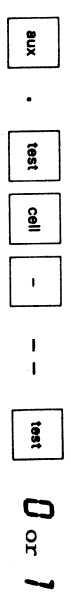
9.3 Modelling light reduction

When power supply is weak, the brightness of the modelling light may be reduced in order to lower power consumption during the charging transaction. Proceed as follows:

- Press key "aux" until only the decimal point lights up in the display field.
- Following this, press the keys "test"/"cell"/"-" in sequence. The display shows --.

- Following this, press the key "test":

The display shows 0 for modelling light normal  
The display shows 1 for modelling light reduced  
The conversion from 0 to 1 and vice versa is implemented with the key "+".



9.4 Program version

In case of any consultation with a broncolor service dept, it pays to know the program version of the micro processor.

- Press key "aux" until only the decimal point lights up in the display field.
- Following this, press the keys "test"/"cell"/"-" in sequence. The display shows --.
- Following this press the key "cell":

The display now shows the two last digits of a four-digit number. By pressing the key "-", the two higher digits follow marked by the display "dly".

10. Accessories

10.1

The compuls units are fitted for the installation of the reflectors with a bayonet socket. The release fitted on the side of the compuls units (5) allow a convenient replacement of reflectors and accessories. The interchangeable reflectors and accessories for the pulso lamps as listed in the broncolor system catalogue may also be used with a compuls unit.  
An exception is the umbrella holder. A special holder is attached to the compuls units laterally on the housing (6) using a screw. The diffusion and reflection umbrella can be used with this.  
The jumbo umbrellas, due to their excessive weight, cannot be used.

11. Technical data

	computs 65	computs 95	computs 165
Flash power	640 J	960 J	1600 J
f-stop in 2m, 100 ISO ref. P70	32 8/10	45 5/10	64 2/10
Flash duration (t <sub>0,5</sub> ) (t <sub>0,1</sub> )	1/1500 s 1/450 s	1/1000 s 1/300 s	1/600 s 1/180 s
Recycling time 100 %, min.-max.	0,2-1,0s	0,3-1,5s	0,5-2,4s
Modelling light (halogen)	650W/220/240V, stabilized, proportional to flash power		
Triggering	IRS-transmitter, photocell, sync cable, open flash button		
Range of variation	4 f-stops in 1/10 f-stop settings, 1:16		
RF suppression	all models: SEV/VDE class N		
Power supply	all models: 200-240 V 10A		
Dimensions cm	all models: 415x215x165		
Weight kg	5,4	5,8	7,1