Operating instructions

broncolor®

Nano 2 / Nano A4

www.broncolor.com

Operating Instructions

b r o n c o l o r
Nano 2 / Nano A4

Before use

Please read all the information contained in these operating instructions carefully. They contain important details on the use, safety and maintenance of the appliance. Keep these operating instructions in a safe place and pass them on to further users if necessary.
Observe the safety instructions.

Contents

Important safety instructions

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

1. Read and understand all instructions before using.

2. Close supervision is necessary when any appliance is used by or near children. Do not leave appliance unattended while in use.

3. Care must be taken as burns can occur from touching hot parts.

4. Do not operate appliance with a damaged cable or if the appliance has been dropped or damaged - until it has been examined by a qualified serviceperson.

5. Position the cable so that it will not be tripped over, pulled, or contact hot surfaces.

6. If an extension cable is necessary, a cable with a current rating at least equal to that of the appliance should be used. Cables rated for less amperage than the appliance may overheat. When using a cable reel, it has to be unrolled before operating to avoid overheating of the cable.

7. Always turn off the power pack before connecting or disconnecting any lamp bases.

8. Always unplug appliance from electrical socket before cleaning and servicing and when not in use. Never jerk cable to pull plug from socket. Grasp plug and pull to disconnect.

9. Let appliance cool completely before putting away. Loop cable loosely around appliance when storing.

10. When putting away or winding up cables, take care they do not get in contact with hot parts of the appliance or lamp bases.

11. To reduce the risk of electric shock, do not immerse this appliance in water or other liquids.

12. To reduce the risk of electric shock, do not disassemble this appliance, but take it to a qualified serviceman when service or repair work is required. Incorrect reassembly can cause electric shock when the appliance is used subsequently.

13. The use of an accessory attachment not recommended by the manufacturer may cause a risk of fire, electric shock, or injury to persons.

14. Connect this appliance to an earthed socket.

Attention:
Read before starting up the power pack

- Prior to replacing fuses, modelling lamps or flash tubes, discharge the power pack and disconnect from power supply. Disconnect the lamp base from the power pack.

- These units are designed for use in dry conditions. Protect them from water and from excessive exposure to dust.

- The units are not suitable for use in an environment where there is a risk of explosion.

- The accessories mounted onto the lamp bases may heat up to high temperatures under specific conditions. Handle with care!

- With due allowance for heat radiation, lamp bases with more than 100 W modelling light may be directed against inflammable surfaces only at a minimum distance of 1 m.

- For safety reasons, never operate the lamps without the protecting glass in place.

- 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 covers with a UV coating. Without these or other protective filters, use with extreme care when shooting.

- Even when disconnected from the power supply, dangerous voltages may remain inside the unit. For this reason units should be opened by trained personnel only.

- Do not block the cooling louvers on the unit.

- **broncolor** power packs and lamp bases meet an extremely high safety standard. When connecting **broncolor** products to other manufacturers' products, integrated safety measures may become ineffective. Due to different design features and contact assignment of the lamp plugs of other makes, the user himself/herself may even be at risk. We offer no guarantee and accept no liability for damages which may be caused by this type of usage.

Controls and displays

1. Mains switch
2. Modelling light on / off
3. Test key, ready display green
4. Photocell and IR receiver on / off
5. Buzzer on / off
6. Slow charge on / off
7. Charging dimmer on / off
8. Operating mode modelling light
9. IR receiver cell
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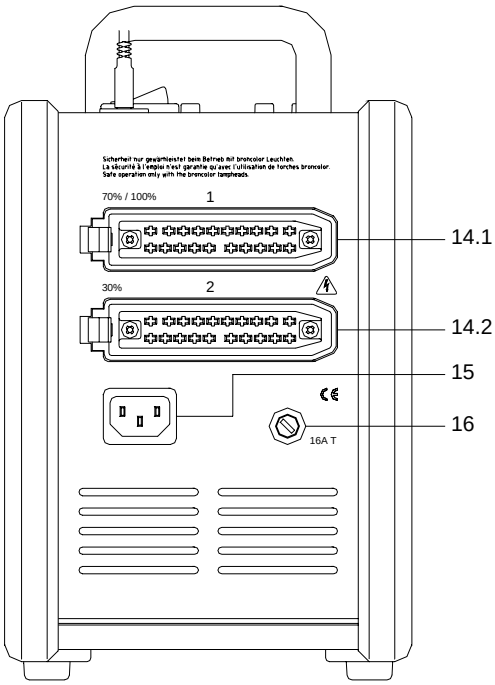
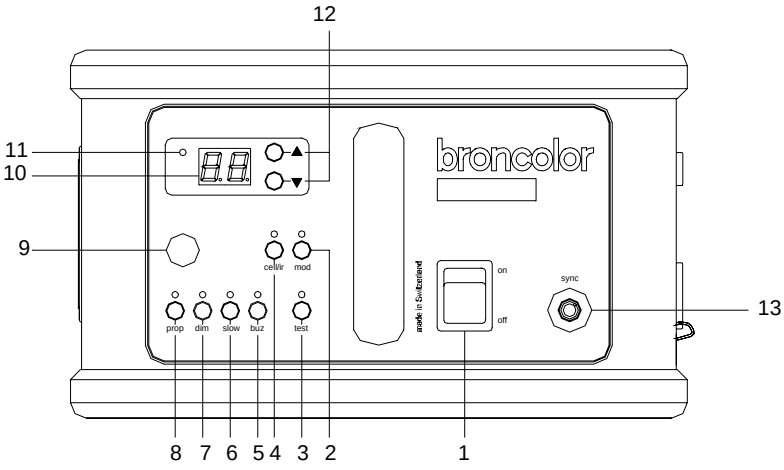
11. Photocell
12. Energy control up / down
13. Sync socket

14.1 Lamp base outlet 1

14.2 Lamp base outlet 2

15. Connection socket for mains cable
16. Fuse


Sicherheit nur gewährleistet beim Betrieb mit broncolor Leuchten.
La sécurité à l'emploi n'est garantie qu'avec l'utilisation de torches broncolor.
Safe operation only with the broncolor lampheads.
70% / 100%
1
30%
2
14.1
14.2
15
16
16A T


12
11
10
9
broncolor
cell/lr
mod
prop
dim
slow
buz
test
on
off
sync
13
8
7
6
5
4
3
2
1

1. Application Nano

We are very pleased you have chosen the broncolor power pack Nano 2 respectively Nano A4 which are high-quality products in every respect. If used properly, they will render you many years of good service.

This mains supplied (AC-line) studio flash unit is designed for professional photography. For your own safety, use a three-wire extension cable when required.

2. Startup

2.1 Mains (AC-line) voltage

Nano 2 and Nano A4 are available in two different versions:

a) As a bi-voltage unit, of which the technical data are optimized for a mains voltage of 200 - 240 V. If this version is operated with a mains voltage of 100 - 120V, a doubling of the charging time results.

b) As a unit which is exclusively designed for a mains voltage of 100 - 120 V.

Please check, if the local mains voltage corresponds with the indications on the label of the unit. Make also sure that the halogen lamps (modelling light) of the connected lamp bases correspond with the indicated mains voltage.

2.2 Earthed Mains (AC-line)

Connect unit to current supply always using earthed mains plug.

2.3 Start up

Use the mains (AC-line) switch (1) to power-up unit. During the charging process the digital power display (10) flashes, after which, it becomes continuous. Addionally the green ready light (3) is lit.

3. Energy control

Use the „up / down“ keys (12) to control the flash energy (flash intensity) within a range of 4 f-stops. A value of 10 in the display indicates maximum intensity, 6 minimum. It is possible to extend the control range to 5 f-stops (see chapter 9).

Furthermore, by selecting the corresponding outlet, the control range of variation can be extended by one f-stop (Nano 2), respectively 1,7 f-stop (Nano A4). Whole numbers correspond to whole f-stop intervals, decimal places to tenth f-stop steps. Brief pressure on the "up / down" keys changes the setting by a 1/10 interval, prolonged pressure by 1/1 f-stop interval. The energy display (10) then flashes until charging or discharging has stabilized the new level.

4. Lamp base outlets

With Nano 2 and Nano A4 the whole broncolor lamp base assortment is applicable without restriction. The lamp base outlets (14.1 resp. 14.2) of the Nano units are marked with the numbers 1 and 2. Nano 2 is designed for symmetrical energy distribution, Nano A4 has an asymmetrical (individual) energy distribution. The lamp base outlet 1 allows the triggering of 100% of the selected flash energy.

The flash capacitors of the Nano units are divided in two groups: 50% to 50% symmetrically for Nano 2 and in the ratio 70% to 30% for Nano A4. If the power packs are in use with only one lamp base, this type of design presents the advantage that up to a maximum of 50% (Nano 2) or 30% (Nano A4) of the selected total energy can be triggered over the lamp base outlet 2 (14.2) without needing to discharge the superfluous energy over the outlet 1 (14.1). The fine adjustment is made by the flash voltage. In this way the colour temperature with Nano 2 can be maintained constant within a range of 3 f-stops and +/- 100 K without overcharging the flash capacitors. With Nano A4 this range amounts to 3,7 f-stops.

5. Modelling light

5.1 General

The modelling light is switched on by the key "mod" (2) for all connected lamp bases. When switched on, the green diode lights up. The lamp bases also have an additional modelling light switch.

In chapter 8 you can find the instructions how to select the different operating modes (modelling light proportionality).

5.2 Proportionality

The brightness of the modelling light can be set proportionally to the flash intensity. To assure proportionality when operating units with different power output ratings, the units have various proportionality levels. Proportionality is guaranteed if the identical prop level has been set for all power packs. The higher the digit, the brighter the modelling light. With the Nano power packs the proportionality refers to one single lamp base, connected to outlet 1.

If the power pack Nano 2 is operated with two lamp bases, the proportionality of the modelling light can be ensured by setting its proportionality level one digit lower in relation to the other power packs in use (e.g.: level 2 instead of level 3).

The following operating modes are possible:

"P" Proportional modelling light with an output level up to 1200 J (with Nano 2) respectively 2400 J (with Nano A4). This operating mode (highest proportionality level) is recommended, when exclusively Nano power packs with the same output level are in use in one working session.

"P1" Proportional modelling light with broncolor power packs up to 6400 J

"P2" Proportional modelling light with broncolor power packs up to 3200 J (= ex works setting for Nano A4)

"P3" Proportional modelling light with broncolor power packs up to 1600 J (= ex works setting for Nano 2)

"P4/5" If a power pack is operated at a relatively low output level, the halogen modelling light will be relatively weak and yellowish. To counteract this problem, the Nano power packs are equipped with two additional modelling light proportionality levels: "P4" for 800 J or less and "P5" for 400 J or less. Thus the brightness of the modelling light can be increased.

"HI" All lamp bases operate at full modelling light power independent of flash output. This setting will allow video recordings using the modelling lamps.

"LO" Lighting level is reduced for all lamps independent of the flash output to reduce power consumption and extend the burning life of the halogen lamps.

Pressing the “mod” key (2) for 1 second when the modelling light is on will give direct access to the "HI" mode. To return to the previous mode briefly press the "mod" key.

Highest possible proportionality settings when combining power packs of different output:

	Nano 2 Topas A2 Grafit 2, A2 Mobil	Nano A4 Topas A4 Grafit A4	Topas A8 Evolution
Nano 2 Topas A2 Grafit 2, A2 Mobil	P3 (or „P“ when only Nano 2 are in use)	P2	P1
Nano A4 Topas A4 Grafit A4	P2	P2 (or „P“ when only Nano A4 are in use)	P1
Topas A8 Evolution	P1	P1	P1

Example 1: A power pack Nano 2 is operated together with a power pack Topas A8 Evolution. The modelling light is proportional when both are set to level "prop1".

Example 2: A power pack Nano A4 is operated together with a power pack Grafit A2. The modelling light is proportional and highest possible when both are set to level "prop2".

5.3 Modelling light switch on lamp base

The switch on the lamp base permits selective lighting control with the modelling light. To avoid damage to the lamp filament, always switch off the modelling light before moving the lamp bases.

6. Release

The flash release is enabled when 75 % of the selected energy is available. Please note, however, that the ready indicator is activated only at 100 % charge (chapter 7).

6.1 Photocell (cell) and infrared receiver (IR)

The photocell and the IR receiver can be switched on or off by using the "cell/IR" key (4). If they are activated the green LED lights up.

6.2 Infrared flash release channel

You can trigger the Nano power packs from broncolor infrared transmitters. If the power pack is triggered via infrared, the flash is released after a transmission delay of 1/1000 s.

6.3 Sync socket (13)

Synchronous cables art. no. 34.111.00 or 34.112.00 may be plugged into the socket to release flashes via cable.

6.4 "Test" key (3)

This key (3) allows manual release of the power pack.

7. Flash ready signals visual / audible

7.1 **The visual ready signal** is the green LED at the „test“ key (3). It lights up only when the unit is fully charged. After a flash this LED goes out and lights up again when the unit is fully charged again.

7.2 **The audible signal** "buzzer" sounds when the unit is at 100% charge. It may be switched on or off (chapter 8).

7.3 Audible fault signal

When the flash discharge fails, a warning signal of approx. 3 s duration will sound and the display (10) of the relevant lamp base will flash.

8. Setting additional functions

When switching the unit off and on again, it will be in operating mode „standard display“. Previously set additional functions are retained.

8.1 Set proportionality level of the modelling light

The „prop“ key (8) is used to activate the setting mode which will be indicated by the green flashing LED. The desired proportionality level of the modelling light can be selected by a brief pressure on the „up/down“ key (12). With repeated actuation of the key the following modes can be set, each shown respectively on the digital display (10): P, P1, P2, P3, P4, P5, HI, LO.

After the setting has been performed, the standard display can be re-activated by pressing the „prop“ key (8) or automatically after a waiting period of 10 seconds. After return to normal mode, the respective LED turns off.

8.2 Set charging dimmer (dim)

The “dim“ function can be switched on or off by briefly pressing the "dim" key (7). If the dim function is switched on, the green LED lights up as a reminder. When switching on the dim function is active, the modelling light is switched off while charging takes place. This feature can be used as a visual flash monitor, to fade out the modelling light during flash sequences or to reduce the current load on weak mains (AC-lines).

If the “dim“ function is activated while the modelling light is switched off (green LED of the „mod“ (2) is off), the modelling light serves as a flash monitor during charging time.

8.3 Set slow charge (slow)

In case of weak mains (AC-line) power supply lines, charging time may be extended to approx. double the standard value. The slow charge mode is switched on or off by briefly pressing the "slow" key (6). If this function is activated, the green LED lights up as a reminder.

8.4 Set buzzer (buz)

The ready buzzer sounds when the unit is at 100% charge. The buzzer is switched on by briefly pressing the „buz“ key (5). If this function is activated, the green LED lights up as a reminder. The alarm tone will remain audible even if the ready buzzer is switched off.

9. Basic settings ex works

The basic settings ex works can be viewed and in some instances changed with the following procedure:

When the unit is switched on, simultaneously press the "cell/ir" (4) and "buz" (5) for about 5 seconds. The blinking LED row "prop", "dim", "slow" and "buz" indicates the programming mode. Additionally the LED of the „cell/ir“ and „mod“ keys light up. The digital display (10) shows the function number 0. Now all other function numbers can be selected with the energy control „up/down keys (12).

By briefly pressing the „cell/ir“ key (4) the digital display (10) will show you the actual values respectively the actual setting within the selected function number. The LED of the „cell/ir“ and „mod“ keys do not glow in this mode. Within the function numbers 1 and 2 the settings can be changed by pressing the energy control „up/down” keys (12). Concerning the function numbers 0 and 3, the different pairs of these multiple digit values can be shown alternately by means of the energy control “up/down“ keys (12).

Return to normal operation by pressing (1 s) the „cell/ir“ or by switching the unit off and on again.

Function number	Meaning and possible settings
0	Program version after pressing the energy control „up“ key Program number after pressing the energy control „down“ key
1	Flash energy setting range: - setting ex works: "off" (--) "on" on the digital display: The flash energy setting range is extended to 5 f-stops (10 - 5.0). The lowest f-stop exhibits greater tolerances regarding colour and repetitive precision. The flash release is not guaranteed with all lamp bases.

Functions number	Meaning and possible settings
2	Sequence (flash sequences): - Settings ex works: "n0" This function permits to select a defined number of flashes between 1 and 8 (display „n1“ till „n8“). If this function is activated, i.e. a selected value between „n1“ and „n8“, the digital display (10) shows alternately the selected value of flash energy and flash sequence. By selecting the value „n0“ the function will be inactivated. If the unit works in normal operating mode, this function can be chosen directly by pressing (1 s) the „test“ key (3). Return to former operating mode is made, by activating the "cell/ir" key (4).
3	Flash counter: Figure group in the digital display: xxxx**XX** Standard display Figure group in the digital display: xx**XX**xx After activating the energy control key „up“ Figure group in the digital display: **XX**xxxx After activating the energy control key „up“
4	Series number of the unit: Figure group in the digital display: xx**XX**
5	Series number of the unit: Figure group in the digital display: **XX**xx

Return to normal operation by prolonged pressure the „cell/ir“ key, by switching off and on again the unit or automatically after a waiting period of 20 seconds.

10. Protective facilities / Fault indication

10.1 Display "th"

If excessively high temperatures build up inside despite the fan cooling effect, the charge mode will be blocked for a certain period of time and a long audible signal will be generated.

Attention: Do **NOT** switch off the power pack!

During the cooling period "th" shows on the digital display (10). The fan continous to operate, thus accelerating the cooling effect.

10.2 Display "A1"

The unit is equipped with an automatic afterglow blockout. If the flash tube exhibits afterglow (e.g. at the end of its service life), this blockout will block further charging to prevent consequential damage. "A1" will show on the display (10). In this status, the ready lamp is no longer green. The blockout can be cancelled by switching the unit off and on again.

11. Service / Repair

Your broncolor power pack is a precision device which will work for many years without malfunctions if you take proper care of it. If malfunctions do arise, please do not attempt to open the unit to repair it yourself. Even when the unit is shut off, dangerous voltages may remain within the interior of the device. Leave service and repairs to our broncolor repair service.

12. Car battery converter

If no mains (AC-line) power is available, use the 12 V/220 V car battery converter. The modelling light cannot be used in this mode (excessive load on battery) and must be removed.

- Switch off modelling light and disconnect the lamp base from the power pack.
- Connect converter to the 12V car battery with the + and – connecter clamps.
- Connect unit to converter; switch on converter and unit.
- After flash work, switch off converter during pauses. Charge battery if needed by allowing the car engine to run.
- 1 Nano power pack can be connected to the converter.

13. Lamp bases

The following information applies to Pulso, Primo and Picolite lamp bases.

13.1 Replacing flash tubes

Prior to any change of the flash tube, the lamp base must be disconnected from the power pack!

Lamp bases use plug-in flash tubes.

Normally the flash tubes 1600 J have the UV coating directly on the flash tube. In this case, the protecting glass must be uncoated. The protecting glasses and flash tubes 1600 J are available in the versions “UVE coated” (5500 K) and uncoated (5900 K). Therefore, the Pulso G and Unilite lamp bases can be supplied upon request with an uncoated tube and a coated protecting glass.

Due to thermal reasons the flash tubes 3200 J and Picolite lamp bases are only available uncoated. Therefore the protecting glass used for these lamp bases must be coated.

The flash tube and protection glass of the Pulso 8 and Pulso-Twin lamp bases form one module.

13.1.1 Pulso G/Unilite lamp bases up to 3200 J

The protection glass shows a line mark and the glass rim has three notches. When pulling off the protection glass from the locking device of the lamp base, the line mark must be at the top. To change the flash tube, carefully pull off the protecting glass. Pull straight, without tilting. Afterwards pull the flash tube straight along the lamp base axis. When inserting the tube, check that the ceramic base is fully pushed back in. Then the protecting glass has to be re-inserted in front of the modelling light and flash tube. When pushing the protection glass into the locking device of the lamp base, the line mark must be at the top. After the protection glass has latched into place, it must be turned slightly, to avoid it becoming detached. Because the Pulso G and Unilite lamp base can be operated with 1600 J flash tubes as well as with 3200 J flash tubes, a corresponding warning sign is supplied with each flash tube. Please stick this warning sign on the lamp base plug when inserting the flash tube.

13.1.2 Pulso 8 lamp base

The flash tube is only available with a built-in protection glass. When exchanging the flash tubes or replacing the modelling lamp, hold the flash tube carefully on the protecting glass and pull out in axial direction. When inserting the flash tube check that the ceramic base is fully pushed back in.

If the Pulso 8 lamp base is operated with Nano 2, respectively Nano A4, the corresponding power pack must not be operated below power output level 8. Falling below this level, may cause interruptions when triggering the flash and a risk of afterglow of the flash tube.

13.1.3 Picolite small lamp

This small lamp has a plug-in flash tube with spring fastener. For thermal reasons the UV-coating is on the protecting glass. The protecting glass is available in the versions „UVE coated“ (5500 K) and „UVE matt coated“ (5500 K).

To change the flash tube release the spring ring and remove the protecting glass. The flash tube must be pulled out straight along the lamp base axis. When inserting the tube be sure that it is fully pushed in. Finally replace the protecting glass and fasten with the spring ring.

13.2 Changing the halogen lamp

The halogen lamps are also plug-in or screw-in. Taking the lifespan into consideration, the halogen lamp should not be handled with bare hands. Exchange of the halogen lamp is practically identical to that of the flash tube.

The Primo and Picolite lamp base can be run on the local mains (AC-line) voltage (100V–240 V) when a halogen lamp is used which corresponds to the voltage.

13.3 Cooling fan

A cooling fan in the lamp base cools the flash tube and modelling lamp. It also runs when the modelling lamp is turned off.

13.4 Thermal protection

The lamp bases are fitted with an automatical thermal protection. Should the lamp base overheat (e.g. by impeding the flow of cooling air), the modelling light is shut off. Nevertheless you may continue producing flashes. The Picolite, however, has an additional thermal protection which limits the number of flashes.

13.5 Lamp base plugs

The lamp base plugs and sockets have mechanical interlocks to prevent inadvertent disconnection. When plugging in, ensure that those interlocks engage completely. To unplug, push down the locking spring below the cable guide and lift out the plug. The power pack must be switched off to plug-in and to unplug.

13.6 Reflectors

Pulso and Primo lamp bases have a bayonet fitting to attach reflectors. The Picolite small lamp has a built-in reflector.

13.7 Fuses

Only sand-filled fuses of the type indicated on the type plate may be used; otherwise the halogen lamp may burst.

14. Technical data

	Nano 2	Nano A4
Flash energy	1200J (Japan 1000J)	2400J (Japan 2000J)
F-stop at distance of 2 m 100 ISO, reflector P70	45 7/10	64 7/10
Flash duration t 0.1 (t 0.5) each lamp base outlet	1200J (100%): 1/200s (1/650s) 600J (50%): 1/300s (1/1050s)	2400J (100%): 1/150s (1/400s) 1700J: (70%): 1/180s (1/500s) 700J: (30%): 1/250s (1/1000s)
Charging time (for 100% of selected energy)	230 V / 50 Hz: 0,25 – 1,4s 120 V / 60 Hz: 0,25 – 1,7s 100 V / 50 Hz: 0,25 – 1,8 s Can be switched to slow charge mode	230 V / 50 Hz: 0,25 – 2,4s 120 V / 60 Hz: 0,25 – 2,9s 100 V / 50 Hz: 0,25 – 3,3 s
	With Nano 2 / A4 – Version 230 V (bi-voltage)**:** Automatical adaptation to the respective mains (AC-line) voltage Attention: The above mentioned charging times for 100 – 120 V do **not** apply to the bi-voltage version.	
Ready display	Visual and optical (can be switched off), signals when 100% of selected energy is reached.	
Lamp base outlets	2	2
Power output distribution	Symmetrical output distribution	Asymmetrical
Controls	Scratchproof keyboard and LED display	
Control range of flash energy (Japan: ½ f-stop less)	4 f-stops in 1/10 f-stop intervals (1:16); switchable to 5 f-stops (1:32) By selecting the corresponding lamp base outlet up to 6 f-stops (1:64) with Nano 2, respectively up to 6,7 f-stops (1:107) with Nano A4	
Modelling light	Halogen max. 2 x 650 W at 200-240 V Halogen max. 2 x 300 W at 100-120 V Proportional to flash energy and „full“ and „low“ settings. Proportionality adjustable to other broncolor power packs and compact units, also with different power levels. The proportionality of Nano refers to one lamp base on outlet 1.	
Additional function	Sequences (flash series)	
Flash release	Manual release button, photocell and infrared receiver (can be switched off), sync cable, FCM 2, FCC, IRX2, IRQ	
Number of sync sockets	1	
Stabilized flash voltage	+/- 1,5%	
Standards	EC standard 73/23, UL 122	
Power requirements	200-240 V / 50-60 Hz: 10 A 110-120 V / 50-60 Hz: 16 A 100 V / 50 Hz: 16 A	
Dimensions (L x B x H)	235 x 157 x 270 mm	280 x 162,7 x 272 mm
Weight kg	5	6,5

Subject to change in the interest of product enhancement.

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